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United States Department of the Interior
Bureau of Land Management

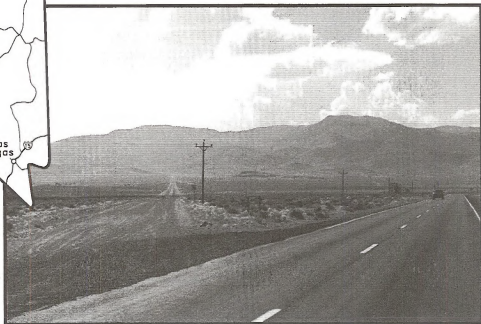
Carson City Field Office
Carson City, Nevada

February 1998



FINAL

Environmental Impact Statement
Olinghouse Mine Project



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1998

MISSION STATEMENT

The Bureau of Land Management is responsible for the stewardship of the our public lands. It is committed to manage, protect, and improve these lands in a manner to serve the needs of the American people for all times. Management is based upon the principles of multiple use and sustained yield of our nation's resources within a framework of environmental responsibility and scientific technology. These resources include recreation, rangelands, timber, minerals, watershed, fish and wildlife, wilderness, air and scenic, scientific and cultural values.

BLM/CC/PL-98/007 + 1791
Case File No. N36-96-001P



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Carson City Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701
PH:(702) 885-6100

February 20, 1998



IN REPLY REFER TO:
3809 (NV030)
N36-96-001P

Dear Reader:

Enclosed for your review and comment is the Final Environmental Impact Statement (FEIS) for Alta Gold Company's Olinghouse Mine Project prepared by the Bureau of Land Management (BLM) Carson City Field Office.

The Final EIS has been prepared in an abbreviated format and must be used in conjunction with the Draft Environmental Impact Statement (DEIS) issued September 12, 1997. The FEIS and the DEIS constitute the complete EIS. In Chapter 4 the FEIS responds to the comments received during the public review period on the DEIS.

Following the 30-day availability period of this Final Environmental Impact Statement, a Record of Decision (ROD) will be issued. Questions or comments should be directed to: Terri Knutson, Olinghouse EIS Project Manager, Bureau of Land Management, Carson City Field Office, 5665 Morgan Mill Road, Carson City, Nevada, or telephone at (702) 885-6156.

Sincerely,

John O. Singlaub
District Manager

Associate

Enclosure



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FINAL
ENVIRONMENTAL IMPACT STATEMENT
ALTA GOLD COMPANY
OLINGHOUSE MINE PROJECT
(FEIS 98-3)

LEAD AGENCY: U.S. Department of the Interior
Bureau of Land Management
Carson City Field Office

COOPERATING AGENCIES: U.S. Fish & Wildlife Service
U.S. Army Corps of Engineers
U.S. Bureau of Indian Affairs
Washoe County
Pyramid Lake Paiute Tribe
Lyon County - Town of Fernley

PROJECT LOCATION: Washoe County, Nevada

COMMENTS ON THIS FINAL
ENVIRONMENTAL IMPACT
STATEMENT (FEIS)
SHOULD BE DIRECTED TO: Terri Knutson, EIS Project Manager
Bureau of Land Management
Carson City Field Office
5665 Morgan Mill Road
Carson City, NV 89701
(702) 885-6000

DATE FINAL EIS FILED WITH EPA: February 20, 1998

DATE WHEN COMMENTS MUST BE
POSTMARKED TO THE BLM: March 20, 1998

ABSTRACT

The Final Environmental Impact Statement (FEIS) responds to comments received by BLM during the public comment period for the Draft Environmental Impact Statement (DEIS). The DEIS analyzed potential impacts which could result from development of Alta Gold Company's proposed Olinghouse Mine located in Washoe County, Nevada. The DEIS analyzed potential impacts which could result from alternatives and mitigation measures which would be implemented to reduce or minimize impacts. The Proposed Action includes: construction of two open mine pits, waste rock dump, haul road, cyanide heap leach pad, ancillary facilities associated with mining and milling, and reclamation. The Agency-Preferred Alternative is Alternative A. Implementation of this alternative would result in 19 acres of additional surface disturbance but would bypass the town of Wadsworth and eliminate mine-related traffic through the community and past the elementary school.

Responsible Official for EIS:

Associate

Karl L. Kipping

John O. Singlaub
District Manager
Carson City Field Office

Date: 2/12/98

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1.0 INTRODUCTION

This Final Environmental Impact Statement (FEIS) is prepared for Alta Gold Company's (Alta) Olinghouse Mine Project located in Washoe County, Nevada. The FEIS contains the Agency Preferred Alternative and a record of written comments received on the Draft Environmental Impact Statement (DEIS). The DEIS previously distributed and this document together constitute the FEIS for the Olinghouse Mine Project.

The DEIS was distributed for public comment on September 12, 1997. BLM received written comments and held two open-house public meetings to receive comments during the public comment period which ended on November 14, 1997. Approximately 250 copies of the DEIS were mailed or distributed to various individuals, organizations, and government agencies. Neither written comments nor comments received during the public meeting identified major changes or modifications to the analysis or conclusions presented in the DEIS. The DEIS has not been reprinted; therefore, this document must be read in conjunction with the DEIS. Minor revisions to the text of the DEIS are addressed in Chapter 3.0 of this document (Errata).

The Agency Preferred Alternative is described in Chapter 2.0 of this document. Chapter 3.0 provides specific edits or corrections to the DEIS. All comment letters received by the end of the comment period and responses to substantive comments are included in Chapter 4.0.

2.0 AGENCY PREFERRED ALTERNATIVE

This section of the FEIS describes the Agency Preferred Alternative. The FEIS Agency Preferred Alternative is not the same as that described in the DEIS; Alternative A is the Agency Preferred Alternative, developed and selected in response to concern of increased traffic through the community of Wadsworth and past the elementary school. In addition, an agreement could not be reached concerning Alta's access across a portion of tribal land on the Olinghouse County Road. Such an agreement would be necessary to implement the Proposed Action, which was the Agency Preferred Alternative in the DEIS.

AGENCY PREFERRED ALTERNATIVE - FEIS

The Agency Preferred Alternative is Alternative A, New Mine Access Road That By-passes Wadsworth. This alternative routes traffic around the community of Wadsworth and avoids lands within the Pyramid Lake Indian Reservation. Alternative A is described in detail on page 2-23 of the DEIS.

3.0 ERRATA

This chapter contains specific modifications and corrections to the Olinghouse Mine Project DEIS. These corrections and modifications were made in response to comments received during the public comment period.

- ii Column 2, paragraph 5, line 6. Delete the sentence beginning with, "This water..."
- iii Column 2, paragraph 1, line 2. Replace "on" with "in".

- 1-4 Change "Threatened and Endangered Species Act" to "Endangered Species Act", and add, on next line, "Migratory Bird Treaty Act".

Add "Dam safety permit" in column 1 and "Nevada State Engineer" in column 2.

- 2-1 Column 1, paragraph 3, line 6. Change "1996f" to "1997c".

- 2-9 Column 2, paragraph 1, line 13. Delete "0.2 to".

Column 2, paragraph 1, line 14. Add "(approximately 80 mg/l, compared to the drinking water standard of 0.2 mg/l)" between "solution" and "at".

- 2-11 Column 2, paragraph 2, line 3. Change "(JBR 1997)" to "(JBR 1997c)".

- 2-13 Column 1, paragraph 4, line 2. Delete "to be".

Column 2, paragraph 1, line 10. After the sentence ending "356 gpm.", add: "All water pumped from the pit for dewatering purposes would be used onsite for process water, and pumping from the Dodge Flat well will be reduced accordingly once the pit intercepts groundwater."

- 2-19 Column 2, paragraph 2, lines 7-9. The sentence should read, "would be tested with

- both meteoric water mobility procedure (MWMP) and toxicity characteristics leaching procedure (TCLP)."
- 3-4 Column 2, paragraph 2, line 11. Add "on the Richter Scale" after "7.2".
- 3-6 Column 1, paragraph 3, line 9. Add "using static and kinetic tests" after "in the laboratory".
- Column 1, paragraph 3, line 13. Change "1997" to "1997a".
- 3-7 Column 2, paragraph 1, lines 4-8. Sentence should read: "Average annual flow... to 1996 was 278,167 acre-ft, for a mean annual flow of 384 cfs (U.S. Geological Survey 1997)."
- Column 2, paragraph 3, line 2. Change "1997" to "1997a".
- Column 2, paragraph 3, line 9. Replace "April" with "August".
- Caption. Change "1997" to "1997a".
- 3-10 Column 1, paragraph 1, line 1. Replace "843" with "982", and add "(SMI 1997b)" at end of sentence.
- Column 1, paragraph 2, last line. Change "(SMI 1997)" to "(SMI 1997a, 1997b)".
- Column 1, paragraph 3, line 3. Replace "April" with "August".
- Column 1, paragraph 3, line 12. Replace "(SMI 1997)" with "(SMI 1997a, 1997b)".
- Column 2, paragraph 2, line 3. Change "1997" to "1997a".
- 3-12 Column 2, paragraph 2, line 18. Change "1997" to "1997a".
- 3-15 Column 1, paragraph 1, lines 4-5. Change "(SMI 1997)" to "(SMI 1997a)".
- Column 1, paragraph 1, line 9. After "35°C" add "(SMI 1997a, 1997c)".
- Column 1, paragraph 2, line 10. Change "1997" to "1997a".
- 3-16 Figure 3.8 is replaced with a new figure that shows the process area and the vertical/horizontal scale (see 3-3 of the FEIS).
- 3-17 Column 1, paragraph 1, line 1. Change "1997" to "1997a".
- Column 2, paragraph 1, line 6. Add to end of paragraph, "Finally, a sample collected in November 1997 from Alta's newly constructed process water well also had a sulfate concentration of 460 mg/l and TDS concentration of 828 mg/l; both of these are in excess of secondary water quality criteria. No other constituents exceeded primary or secondary water quality criteria (Cummings 1997d)."
- 3-18 Figure 3.9 is replaced with a new figure that shows the process area and the vertical/horizontal scale (see 3-4 of this FEIS).
- 3-26 Column 1, paragraph 1, line 1. Change "1997" to "1997a".
- 3-27 Column 2, last line. Change "(JBR 1996c)" to "(JBR 1996b)".
- 3-29 Column 2, paragraph 2, line 6. The sentence "Since 1905..." should read "From 1905 through 1964, more than half of the Truckee River, on average, was diverted to..."
- Column 2, paragraph 2, line 9. The sentence "Water diversions..." should read

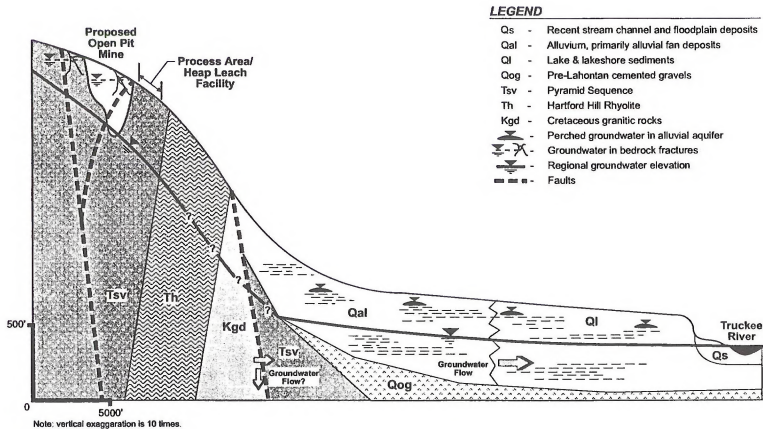


Figure 3.8 Conceptual Hydrogeological Cross Section in the Vicinity of the Project.

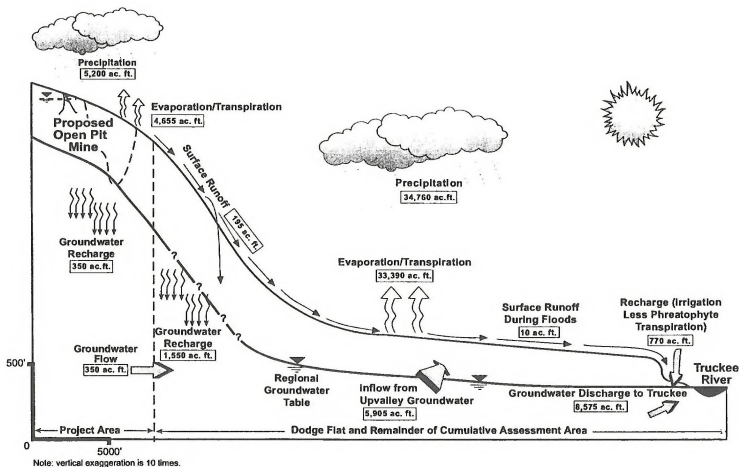


Figure 3.9 Annual Pre-mining Water Balance in the Vicinity of the Project.

"Water diversions associated with the project were the primary cause of an 80-ft drop in the level of Pyramid Lake, and creation of a delta at the mouth..."

Column 2, paragraph 3, line 8. This line should read "reservoirs are managed to enhance".

Column 2, paragraph 3, line 11. Add "or more" after "45 years".

Column 2, paragraph 3, line 12. This line should read "strategy is to maximize spawning opportunities".

- 3-30 Column 1, paragraph 2, line 2. This line should read "cutthroat trout disappeared in the late 1940s, primarily due to".

- 3-32 Column 1, paragraph 1, line 3. Change "Parson" to "Carson".

- 4-5 Column 2, paragraph 2, line 6. Change "1997" to "1997a".

Column 2, paragraph 2, lines 6 and 7. Delete the sentence beginning "However..."

Column 2, paragraph 3, line 3. Change "1997" to "1997a".

Column 2, paragraph 3, line 13. Change "1997" to "1997a".

- 4-6 Figure 4.1 is replaced with a new figure that shows the process area and the vertical/horizontal scale (see 3-6 of the FEIS).

- 4-9 Column 1, paragraph 3. Delete the entire paragraph.

- 4-10 Column 1, paragraph 1, line 2. Change "1997" to "1997a".

Column 1, paragraph 2, line 6. Change "1997" to "1997a".

Column 1, paragraph 3, line 13. Change "1997" to "1997a".

Column 2, paragraph 2, line 5. This line and the rest of the sentence should read, "356 gpm (575 acre-ft/year) during the 5 years of active mining, and 250 gpm (404 acre-ft/year) during the 2-year detoxification and reclamation period, for a total proposed groundwater usage of 3,683 acre-ft."

Column 2, paragraph 2, lines 6-9. Delete "Without accounting for groundwater inflows to Dodge Flat from downvalley transport of groundwater and recharge from the Pah Rah Range and the Truckee River," and add, "This prediction agrees well with the results of the short-term pumping test conducted in Alta's production well at the time of well completion in November 1997." Capitalize "maximum" as the first word in the next sentence.

- 4-11 Column 1, paragraph 1, line 6. After "period" add ", with an additional 1,400 acre-ft removed over a period of several decades for a total consumptive use of nearly 3,700 acre-ft."

Column 2, paragraph 2, line 4, add to end of sentence, "in addition to requirements specified in the draft Nevada Water Pollution Control Permit issued January 12, 1998".

Column 2, paragraph 2, lines 8-11. Replace this sentence with, "Groundwater monitoring of all wells following the protocols established in the baseline groundwater monitoring program would continue on at least a quarterly basis."

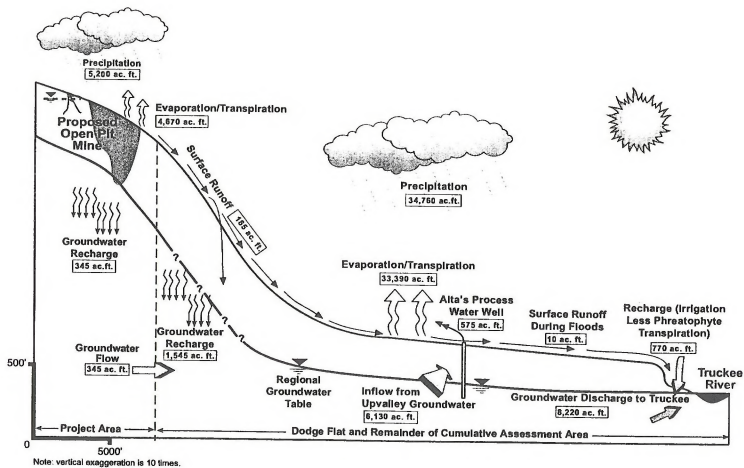


Figure 4.1 Annual Water Balance in the Vicinity of the Project With the Proposed Action.

- Column 2, paragraph 2, lines 17-24. Delete the sentence beginning "Analytes should include..."
- Column 2, paragraph 2, lines 26, 27. Delete "drilling, development, and".
- Column 2, paragraph 2, lines 30-31. Delete this entire sentence and replace with, "Surface water monitoring following the protocols established in the baseline surface water monitoring program would continue on a quarterly basis."
- 4-12 Column 1, paragraph 1, lines 10-18. Delete the three sentences beginning with "Water quality", "This monitoring", and "Dewatering water".
- Column 1, paragraph 1, line 28. Add at beginning of bullet, "Pursuant to the Nevada Water Pollution Control Permit, the facility would install a calibrated rain gauge which would be monitored daily. Additional", and change "Meteorological" to "meteorological".
- 4-13 Column 1, paragraph 1, line 17. After "(13 acre-ft/year)" add, ", or a net increase in evaporation over present conditions of approximately 4.5 gpm (7.3 acre-ft/year)," Add to the end of this paragraph, "The total maximum reduction in inflow to Pyramid Lake would be nearly 3,700 acre-ft, which would be reflected in a total decrease in surface elevation of the lake of 0.03 ft over a period of several decades. Impacts of this magnitude are not expected to be detectable given the natural fluctuations in lake levels."
- 4-18 Column 2, paragraph 3, line 5. Change "1997" to "1997a".
- 4-19 Column 1, paragraph 1, line 6,7. Delete "unless otherwise authorized by the USFWS".
- Column 2, paragraph 2, line 13. Change "have been" to "would be".
- Column 2, paragraph 2, line 15. Change "have" to "would".
- 4-35 Column 2, paragraph 5, line 1. Change "1906" to "1905".
- 4-36 Column 1, paragraph 3, line 9. After "California" add "are in place primarily to serve Orr Ditch Decree water rights and private water rights, and secondarily to".
- Column 1, paragraph 3, line 13. After "Boca Reservoir," add "Independence Lake,".
- Column 1, paragraph 3, line 16. Change "litigation" to "decrees".
- Column 1, paragraph 3, lines 18-21. Delete the sentences "Lake Tahoe..." and "All other upstream..."
- Column 1, paragraph 3, line 22. Change "wars" to "conflicts".
- Column 2, paragraph 3, lines 1-5. The first sentence should read "Water diversion from the Truckee River for Newlands project agriculture in the Carson River basin is presently about 100,000 acre-ft or less."
- Column 2, paragraph 3, line 16. After "agencies" add "for municipal and industrial use".
- 4-37 Column 1, paragraph 1, line 12. After "federal reservoirs" add "; however, these actions have not yet been implemented".
- Column 1, paragraph 1. Add the sentence "Sierra Pacific's primary requirements are to meet municipal and industrial water needs." to the end of the paragraph.

-
- 4-39 Column 2, paragraph 4, line 10. Change "9,100" to "6,700".
- 4-40 Column 1, paragraph 1, line 17. After the sentence ending with "period." add, "The total cumulative water usage from this mine expansion scenario would be 6,590 acre-ft. This quantity of water usage represents 0.15% of the inflow to Pyramid Lake over a 12-year period, resulting in a total lowering of the lake surface of 0.06 ft. Because of the probable longer time period for full response of the aquifer, the change in lake elevation would occur over more than this 12-year period. Impacts of this magnitude are not expected to be detectable given the natural fluctuations in lake levels."
- Column 1, paragraph 2, line 6. The line should read "upper Truckee River reservoirs are operated".
- 4-41 Column 1, paragraph 1, lines 1-5. This paragraph should read "It is reasonably foreseeable that the TROA would benefit both the Truckee River and Pyramid Lake."
- Column 1, paragraph 2, line 2. Change "in to" to "into".
- Column 1, paragraph 2, lines 14-15. Delete "This agreement".
- 4-42 Column 1, paragraph 4, line 5. Change "flow" to "flows".
- 4-44 Column 1, paragraph 1. Add the sentence "Increased use of hazardous materials would increase the risk of a spill." to the end of the paragraph.
- 5-2 Section 5.4. List of Agencies, Organizations, and Persons Receiving Draft EIS: Mailing list has been modified to add the following:
- Balfour Holdings
Attn: Doug Silver
10 Inverness Drive, Suite 104
Englewood, CO 80112
- Bowling Green State University
Center for Environmental Programs
Attn: Dr. Steven C. Steel
141 College Park
Bowling Green, OH 43403
- Bureau of Indian Affairs
Attn: Amy Heuslein
2 Arizona Center
400 North 5th Street, 12th Floor Mail Room
Phoenix, AZ 85004
- Class I Technical Services
Attn: Ralph Williams
2820 Broadbent Parkway NE, Suite E
Albuquerque, NM 87107
- Colorado State University
Documents Department-Library
Attn: Kara Wittstock
Fort Collins, CO 80523-1019
- Converse Consultants
Attn: Dean Alford
421 Court Street
Elko, NV 89801
- Converse Consultants
Attn: Lou Knight
731 Pilot Road
Las Vegas, NV 89119
- Jim DeSilva
P.O. Box 69
Wadsworth, NV 89442
- Pat Keane
P.O. Box 7258
Reno, NV 89510
-

Elko Daily Free Press
Attn: Adella Harding
3720 Idaho Street
Elko, NV 89801

EMA Consulting
Attn: Carie Smith
100 West Grove Street, Suite 100
Reno, NV 89509

Greystone Environmental
Attn: Jerry Koblitiz
5990 Greenwood Plaza Blvd., Suite 250
Englewood, CO 80111

Jim Kuipers
P.O. Box 115
Butte, MT 59703

Scott Lewis
5640 North Chieftan Trail
Tucson, AZ 85750

Robert W. Maichle
4221 West Arby Avenue
Las Vegas, NV 89118-5107

Drew Martin
3702 South Virginia, Suite G12-234
Reno, NV 89502

Robert Martinez
1333 East Long Street, Apt. A
Carson City, NV 89706

Bea Moore
4350 Warren Way
Reno, NV 89509

Tom Myers
200 Bartlett Street
Reno, NV 89512

Nevada Land and Resource Company
Attn: Pete Rutledge
1755 East Plumb Lane, #151
Reno, NV 89502

New Mexico Environmental Law Center
Attn: Douglas Wolf
1405 Luisa Street, Suite 5
Santa Fe, NM 87505

Northwestern University
Institute for Policy Research
Attn: H. Paul Friesema
2040 Sheridan Road
Evanston, IL 60208-4100

Vivian Olds
P.O. Box 547
Wadsworth, NV 89442

Robert Pelcyger
1881 9th Street, Suite 216
Boulder, CO 80302

Reno Gazette-Journal
Attn: Frank Mullen
955 Kuenzli
P.O. Box 22000
Reno, NV 89520-2000

Sierra Club Toiyabe Chapter
Attn: Tom Meyers
P.O. Box 8096
Reno, NV 89507

Trout Unlimited
Attn: Matt Holford
P.O. Box 5882
Elko, NV 89802

U.S. Army Corps of Engineers
Sacramento District
1325 J Street
Sacramento, CA 95814-2922

U.S. Department of the Interior
WO 320
L Street, Mail Stop 501
Washington, D.C. 20240

U.S. Department of Energy
Office of Env. Compliance (EH-23)
1000 Independence Avenue SW
Washington, D.C. 20585

Steve Wathen
1770 O'Farrell Street
Reno, NV 89503

Western Environmental Law Center
Attn: Liz Mitchell
1216 Lincoln Street
Eugene, OR 97401

Washoe County
District Health Department
Attn: Chris Ralph
401 Ryland, Suite 331
Reno, NV 89502

J.D. Welsh & Associates, Inc.
Attn: Paul Morgan
331 Freeport Blvd.
Sparks, NV 89431

Gold Company, Fernley, Nevada. Shepherd
Miller, Inc., Fort Collins, Colorado."

Add to reference list: "Shepherd Miller,
Inc. 1997c. Ground Water monitoring
report, third quarter 1997, for the proposed
Olinghouse open-pit mine, Washoe County,
Nevada. Prepared for Alta Gold Company,
Fernley, Nevada. Shepherd Miller, Inc.,
Fort Collins, Colorado."

- 7-10 Column 1. Add the following reference:
"Tanner, G. 1997. Chief of Game, Nevada
Division of Wildlife, Reno, Nevada.
Personal communication on March 21,
1997. Contacted by Diane Thomas, TRC
Mariah Associates Inc., Laramie,
Wyoming."

Column 2. Change reference from "U.S.
Geological Survey. 1996." to "U.S.
Geological Survey. 1997."

- 7-1 Column 2. Add to reference list:
"_____. 1983a. Nevada Pacific Mining
Company Water Line and Powerline EA.
EA-NV-030-4-09. U.S. Department of the
Interior, Bureau of Land Management,
Carson City District, Carson City, Nevada."
- 7-3 Add to the reference list: Cummings, G.
1997d. General Manager, Alta Gold
Company, Fernley, Nevada. Personal
communication on December 16, 1997.
Contacted by Anne MacDonald, PTI
Environmental Services, Boulder, Colorado.
- 7-9 Column 1. Change "Shepherd Miller, Inc.
1997." to "Shepherd Miller, Inc. 1997a".

Add to reference list: "Shepherd Miller,
Inc. 1997b. Spring and surface water
monitoring report, third quarter 1997, for
the proposed Olinghouse open-pit mine,
Washoe County, Nevada. Prepared for Alta

4.0 COMMENTS AND RESPONSES

This chapter includes copies of all public comments received during the comment period on the Olinghouse Mine Project DEIS. BLM's responses to substantive comments are provided adjacent to the reproduced comment letters. Forty letters were received by BLM during the public comment period which ended on November 14, 1997.

Open-house public meetings were held in Reno, Nevada, on October 20, 1997, and in Fernley, Nevada, on October 21, 1997, to accept comments on the accuracy and adequacy of the DEIS. General members of the public attended the meeting and five comments were received.

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LETTER 1, U.S. ENVIRONMENTAL PROTECTION AGENCY



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
78 Hawthorne Street
San Francisco, CA 94105

November 10, 1997

Bureau of Land Management
Carson City Field Office
Attn: Terri Knutson, EIS Project Manager
5665 Morgan Mill Road
Carson City, NV 89701

Dear Ms. Knutson:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Olinghouse Mine Project, Washoe County, Nevada. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality's NEPA Implementation Regulations at 40 CFR 1500-1508, and Section 309 of the Clean Air Act.

The DEIS analyzes the impacts of a proposed gold-silver mining project which would involve excavation of an open pit, construction and operation of heap leach facilities and a small gravity mill, overburden rock piles, ore stockpiles, and processing and ancillary facilities. Under the BLM preferred alternative, the project would disturb approximately 502 acres over a period of 7 years and involve the excavation of approximately 43,385,000 tons of waste rock and 9,660,000 tons of ore.

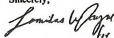
We have rated this DEIS as EC-2 -- Environmental Concerns-Insufficient Information. (See the enclosed "Summary of Rating Definitions and Follow-up Action"). Our rating primarily reflects concerns over impacts to water resources, and related aquatic resources and the need for additional information in the Final Environmental Impact Statement (FEIS) to address those concerns. EPA recognizes that NEPA documents should be concise and aim for reduction of paperwork in keeping with 40 CFR 1500.4. We commend BLM on a good job in presenting a concise and well-written document. However, an Environmental Impact Statement (EIS) should focus on key issues that are useful to decision makers [40 CFR 1500.4(f)], and we believe that there are opportunities to focus on these issues by including or appending specific documentation as identified and explained in our attached detailed comments.

Inasmuch as the proposed project is located within the Truckee River watershed, the potential for and intensity of significant environmental impacts are raised due to presence of ecologically critical areas and past controversies [40 CFR 1508.27(b)(3)(4)]. With this in mind, we emphasize our concerns that the proposal could pose long-term impacts to surface and ground waters. We are also concerned about possible significant impacts to endangered species habitat in the Truckee River, due to cyanide exposure, should massive failure or flood-induced breaching

at the ore processing facilities occur.

We appreciate the opportunity to review this DEIS. Please send two copies of the FEIS to this office at the letterhead address (mail code CMD-2) when it is officially filed with our Washington, D.C., office. Should you have any questions, please contact me at (415) 744-1584, or Karl Kanbergs at (415) 744-1483.

Sincerely,



David J. Farrel, Chief
Federal Activities Office

002697/97-290

Enclosure

cc: Pam Repp, Mary Jo Elpers, U.S. Fish and Wildlife Service
Nancy Kang, U.S. Army Corps of Engineers
Patrick Williams, U.S. Bureau of Indian Affairs
Ron Kilgore, Washoe County, Department of Development Review
Mervin Wright, Jr., Pyramid Lake Paiute Tribe
Rebecca Harold, Lyon County -- Town of Fernley

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

BC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

PI-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1-Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and that should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

"From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

WATER RESOURCES

The Proposed Action (PA) is within the Truckee River watershed. EPA suggests that the threshold for potential significance of environmental impacts created by the PA is lowered due to presence of ecologically critical areas and past controversies [40 CFR 1508.27(b)(3)(4)]. We have identified five components of the PA that could pose significant environmental impacts to ground and/or surface water resources and associated biologic resources. These are (1) heap leach facilities, (2) the waste rock dump, (3) groundwater pumping of process water at Dodge Flat during mine life and reclamation, (4) projected post mining pit lake, (5) pit dewatering. Our water resource related comments and recommendations are described in the following sections.

Heap Leach Facilities

The proposed heap leach facilities and associated ponds could contaminate groundwater or surface water through use of sodium cyanide. As the DEIS states, failure of primary engineering controls could result in the release of hazardous material into the environment. EPA is concerned about possible release of pregnant solution to ephemeral drainages during a storm event that could work its way toward the Truckee River. We are equally concerned about liner rupture, in the unlikely occurrence of a fault displacement or landslide event directly affecting the pad and pond area.

EPA recommends designing the event pond for at least a 24-hour 50-year flood containment capacity. We recognize Nevada Department of Environmental Protection's (NDEP) requirements for a 25-year flood design, at minimum. However, because of possible effects to the Truckee River system from a pond breach, a larger containment capacity is preferred. Both State of Nevada regulations [NAC 445.2436(1)(d)] and BLM's Nevada Cyanide Management Plan encourages design of containment capacity based on a number of factors, including proximity to surface water. BLM should re-evaluate its stated position on this issue and present an expanded alternatives discussion and/or design modifications in the Final Environmental Impact Statement (FEIS). For example, in reviewing Alta Gold Company's (Alta) Plan of Operations we noted that it may be possible to relocate the storm event pond facilities slightly southward to avoid flow toward Olinghouse Creek, if an unlikely breach were to occur. Such relocation would divert flows into other drainages with less connection to the Truckee River. Additionally, because the proposed ore processing area is at the mouth of a drainage, we also ask that the BLM provide assurance that storm water diversion and culvert sizing is appropriate to avoid flooding of the facilities.

1-1 According to the DEIS, should the pond overflow, cyanide would be diluted and otherwise

1

1-1 According to the Nevada Bureau of Mines and Geology, the heap is not located on an active fault; therefore, a tear in the liner due to faulting would not occur. The name "Olinghouse Fault" has been applied to two different faults—an inactive, mineralized fault in the project area and an active fault that does not occur on the project area.

Landslides have not occurred in the area since prehistoric times, and the location of the process area for the mine is quite flat. Therefore, landslides do not present a problem to the stability of the process area.

The BLM appreciates your recommendation to increase the size of the event pond to minimize the possibility of a pond breach resulting in toxic materials reaching the Truckee River. The BLM is requiring as mitigation, and Alta has committed to, increasing the size of the event pond to accommodate a 24-hour 100-year event (see Section 5.1 of this Final EIS).

1-2 The BLM does not recommend that the event pond be located farther south to divert flows into the Pierson Canyon drainage because that drainage has a closer connection to the Truckee River.

1-3 Storm water diversion is designed to handle a 24-hour 100-year event as per Nevada Administrative Code 445A.433.1 (DEIS at 2-14). It is the responsibility of the proponent/applicant and ultimately the design engineer of record to ensure that design calculations and assumptions are technically sufficient and defensible.

The North Facilities watershed—the largest watershed in the process area—drains into a ravine on the north side of the leach pad that has the capacity to convey runoff from the design storm.

1-4 As described in the response to comment 1-1, Alta has committed to increasing the size of the event pond to accommodate a 24-hour, 100-year event. Therefore, there is no longer a need to estimate the concentration of cyanide that would be released should the pond overtop—the pond would not overtop. The increased size of the event pond, coupled with the very infrequent flow of Olinghouse Creek across Dodge Flat (i.e., only during the peak flows of storms with a recurrence interval greater than a 10-year storm), supports the finding of less than significant impacts. Emergency cyanide neutralization procedures would be governed by the Spill Management Plan described in Section 2.1.5 of the DEIS and Volume II of the Water Pollution Control Permit Application (JBR 1997c), using calcium hypochlorite (listed in DEIS Table 2.5) or hydrogen peroxide as an oxidizing/neutralizing agent.

1-4 attenuated. The FEIS should justify BLM's assertion that this scenario would result in less than significant impacts and describe any impacts to Truckee River water quality. Also, emergency cyanide neutralization procedures should be described under water resource monitoring and mitigation measures.

1-5 The DEIS describes the project area as seismically active and landslide prone. The placement of the heap leach facilities along a northwest lineament (parallel to the Olinghouse Fault Zone) raises concerns whether there might be active faults underlying the site. Any linear leaks caused by catastrophic failure could significantly impact groundwater resources. EPA recommends that the FEIS provide assurance that the ore processing area is not located along an active fault trace or within a slide area. A geotechnical site characterization is assumed, but not described in the DEIS. The FEIS should address these concerns.

1-6 Several further mitigation measures are recommended for heap leach facilities. To mitigate impact to fauna, EPA prefers use of drip emitters for application of leach solution. Additionally, the top of the heap leach pad should have a grade between 1 and 2 percent, so as to avoid ponding and potential harm to wildlife.

Waste Rock Dump

1-7 One large waste rock dump is proposed and would fill the upper reaches of Frank Free Canyon, covering a small spring/seep. According to the DEIS, the Frank Free canyon stream channel has been classified as a water of the U.S. by the U.S. Army Corps of Engineers (USCOE). The spring/seep may meet regulatory criteria for jurisdictional wetlands classification. This should be addressed in the FEIS. Furthermore, the FEIS should state whether the waste rock dump would require an individual Clean Water Act (CWA) Section 404 dredge and fill permit, or a nation-wide permit and acknowledge that a Section 401 water quality certification will be required.

In those situations where an individual section 404 permit is applicable, an alternatives analysis, under CWA 404(b)(1), should be integrated into the NEPA process. Pursuant to CWA 404(b)(1) guidelines at 40 CFR 230, practicable alternatives to the proposed discharge site must be examined and the physical and chemical components of the candidate site must be evaluated.

1-8 Regardless of the type of permit, BLM should discuss and summarize efforts to avoid, minimize and mitigate impacts to waters of the U.S. that could result from fill activities. All down-gradient portions of the impacted drainages should be included in the discussion. For instance, a sedimentation/evaporation pond located downstream from the waste rock dump is proposed. BLM should describe the impacts to the natural drainage from this action. The FEIS should also include a more thorough characterization of the impacted spring area. Is a seep projected to appear at the dump toe, will the configuration be stable, and what assurances are provided that all

1-5 The project area is a seismically active area; however, the DEIS at 3-4 says that although large landslides occurred in prehistoric times, these areas are now quite stable. In determining the stability of the heap leach facilities, the seismicity of the area is factored in. The calculations for the heap in the Olinghouse Mine Project assumed an earthquake of 7.2 on the Richter Scale. The process area is not located on an active fault or within a slide area (please refer to the response to comment 1-1).

1-6 As mitigation, drip emitters would be used for application of the leach solution, and the heap would have a grade of 1-2% to avoid ponding (see Section 5.2 of this FEIS).

1-7 The U.S. Army Corps of Engineers was consulted and the following is their conclusion:

"It is likely that impacts to all waters of the U.S., including wetlands, proposed under the Proposed Action and Alternatives A and B, can qualify for Clean Water Act Section 404 Nationwide Permit #26, provided Alta Gold can meet conditions of nationwide permit. With regard to the impact of the 0.011 acre unnamed spring in Frank Free Canyon, also proposed under the Proposed Action and under Alternatives A and B, Alta Gold will need to demonstrate that all reasonable steps have been taken to first avoid, and second to minimize impacts to this wetlands. If impacts to the spring cannot be avoided, Alta Gold will need to provide an adequate plan to mitigate the loss. The Corps is currently evaluating the proposal to impact this spring, and will (1) determine if avoidance, minimization, and mitigation sequencing can be met and, (2) determine adequacy of any proposed mitigation if wetland losses are unavoidable."

1-8 Based on field observations on December 11, 1997, the seep in Frank Free Canyon flows for approximately 115 ft, centered about the seep shown on Figure 3-5 of the DEIS. No other surface flows have been observed in Frank Free canyon, indicating that only large storms (or snowmelt in the headwaters) produce surface flow. A sedimentation/evaporation pond placed beyond the ultimate toe of the waste rock dump (as described in the DEIS at 4-12) would be located at least 1,500 ft downstream from where this seep infiltrates the unconsolidated valley-bottom alluvium. Stormwater would be diverted around the top of the dump (DEIS at Figure 2-4), and most direct precipitation following reclamation would be captured by the vegetative cover of the dump. The pond is anticipated to be needed only during operation of the dump and the initial period of vegetation establishment following reclamation. In addition, the pond is anticipated to function only

- 1-9 Reasonable measures have been taken to guard against surface or groundwater contamination? Although waste rock has been characterized as non-acid generating, EPA recommends that the FEIS provide assurance that specific characterization will be made for materials placed at the base of the dump to assure that they have a high net neutralization potential. We also recommend placement of at least one monitoring well at the ultimate dump toe. BLM should investigate any geotechnical design options, such as placement of coarse material as a basal layer to facilitate drainage, or construction of a stormwater diversion channel above the dump.
- 1-10 If the spring/seep within Frank Free Canyon is buried, BLM should require appropriate mitigation measures as described at 40 CFR 1508.20. We suggest that BLM require restoration and/or fencing around some of the other springs within the Plan of Operations area that have been previously affected by mining operations or cattle grazing. BLM should prioritize areas of concern, describe cumulative impacts, and provide mitigation recommendations.
- 1-11 EPA would like further clarification of issues related to potential acid rock drainage from the waste rock dump. According to the DEIS, about 1 percent of the ore is expected to be acid generating. While this is not a large amount, improper disposal could still cause significant groundwater and/or surface water impacts. We request clarification regarding percentage of potentially acid-generating material. Appendix G of the Olinghouse Project Heap Leach Facilities Water Pollution Control Permit Application describes that 8 percent of the ore as "high clay with sulfide." This may be in conflict with the DEIS description. If higher sulfide contents are known to occur in the identified additional reserves, acknowledgment should be provided under cumulative impacts.
- 1-12a As part of a mitigation and monitoring program EPA recommends an ongoing characterization of acid generation-neutralization potential (AGNP) of ore materials during mining operations. This can be accomplished by routine spot sampling of typical waste rock using static tests, and follow-up with kinetic tests if warranted. Acid generating materials should be isolated or blended, with a minimum resulting ratio of neutralizing material to acid producing material of 3:1. Capping of heaps with impermeable material or sealing with carbonate material should be considered during reclamation if acid rock drainage is anticipated. We also recommend that waste rock piles be graded between 1 and 2 percent to control runoff and avoid ponding from precipitation.
- 1-12b
- 1-12c
- 1-12d
- Mine Supply Well at Dodge Flat
According to the DEIS, a mine supply well at Dodge Flat, southeast of the PA, would pump at an average rate of 357 gpm or 580 acre-ft per year. EPA is in general agreement with BLM's assertion that under average conditions the impacts to the Truckee River and Pyramid lake would be negligible. We are still concerned, however, about impacts to the Truckee River and related aquatic habitat during possible future droughts. In reviewing reference materials, we note
- 1-9 Please refer to the response to comment 1-12b. Please note that there would be a stormwater diversion ditch above the waste rock dump (DEIS at 2-6 [Figure 2.4]).
- 1-10 Please refer to the response to comment 1-7.
- 1-11 Appendix B, Table 1 of the report titled *Baseline Geochemistry and Hydrology for the Proposed Olinghouse Open-Pit Mine, Washoe County, Nevada, 1997*, hereafter called SMI Baseline Report, presents the percentages of rock and alteration types that would be removed from the proposed pit and left in the pit walls. The total percentage of sulfide rock (with both low and high contents of clay) that would be removed from the pit (most of which would be placed in the waste rock pile) is approximately 19%. The term "sulfide" is misleading in that the rock is qualified as sulfide if any unoxidized pyrite is present. Typically the amount of unoxidized pyrite is 1% or less. Only one sample (of fracture zone--sulfide/high clay rock) has any net potential to produce acid, and this rock and alteration type would comprise less than 1% of the proposed waste rock pile. A second analysis of this rock type did not show the potential to generate acid.
- 1-12a Comment noted.
- 1-12b Due to the low percentage (less than 1%) of material that has the potential to generate acid, and the fact that the material occurs in scattered fractures throughout the pit (i.e., it does not occur in any one place), a waste rock handling plan is deemed to be unnecessary. Random handling and mixing during placement would result in much higher ratios of acid-neutralizing material to acid-generating material than the 3:1 ratio recommended by the writer.
- 1-12c Neither kinetic or ABA test results indicate that acid rock drainage would occur at the heap.
- 1-12d Comment noted.

- 1-13 that during drought years, minimum baseflows can be less than 2 cfs. The DEIS states that groundwater discharge to the Truckee River is expected to decrease by no more than 49 cfs due to pumping affects. The FEIS should comment on possible impacts to the Truckee and possible effects to the endangered cui-ui and the threatened Lahontan cutthroat trout (LCT) during such a drought scenario. To mitigate possible negative effects to the River we recommend that water levels should be monitored on a monthly basis. BLM should work with Alta and other agencies in securing an alternative source of process water in case drawdown exceeds the model predicted drawdown by 50%, or negative impacts, such as impacts to Truckee River biologic resources, are confirmed. We also encourage use of water from pit dewatering for application as mine process water, in order to minimize pumping at the Dodge Flat well.
- 1-14

Pit Lake

- 1-15 The DEIS describes the formation of a post mining pit lake, based on computer modeling. Modeling predicts that the lake will be up to 90 feet deep, will cover an area of 3.4 acres, and will not create adverse impacts to surface or groundwater quality. To facilitate public and agency review [40 CFR 1502.21] EPA recommends that BLM provide a more thorough summary and explanation of the pit water balance and predictive pit lake modeling reports written by Shepherd Miller, Inc. BLM should consider including appropriate cross section(s) and tables to support conclusions. The content of listed references should be clearly identified and their availability for review indicated. The modeling reports appear to be generally good documents, but we do have several comments. A model can be a useful predictor but predictions are only as good as selection of accurate input parameters, such as hydraulic conductivity and initial solution chemistry. We question modeling results based on SMI's report (Water Balance Model), where Figure 4 shows a discrepancy of more than 100 feet between measured and simulated hydraulic heads. The FEIS should clarify the large discrepancies and also note whether the model, TWODAN, has been validated, according to industry protocol.
- 1-16

- 1-17 EPA commends the BLM for using conservative geochemical assumptions for the predictive pit lake model. However, in general, improper assumptions and parameters incorporated into water balance models can invalidate pit lake chemistry predictions. The water balance model is shown to be very sensitive to hydraulic conductivity(K). Because the choice of an average K value may effect predicted pit lake chemistry, the FEIS should justify determination of the average K value. EPA questions the assumption to treat the aquifer as homogenous and isotropic. Contrary to SMI's report, wherein they state that rock types do not exhibit preferred fracture orientations, the DEIS describes mineralization as occurring in a series of near-parallel structures. The FEIS should address these contradictions. EPA recommends a predictive pit lake chemistry simulation based on reduced K values and a discussion of possible effects to pit lake chemistry, if groundwater flow into the pit were to be dominated by flow through a preferred fracture orientation.

Although historical baseflows in the Truckee River at Wadsworth have been reduced to less than 2 cfs during drought years, it is anticipated that new water quality and flow preservation measures contained in the proposed Truckee River Operating Agreement (TROA) would prevent baseflows from dropping as low in the future. Therefore, the anticipated flow reduction in the Truckee River downstream of Wadsworth due to pumping of the production well (which would be undetectable during most low flow conditions) is anticipated to be a smaller proportion of future low flows. Quantifying this proportion of future low flows is not possible until minimum baseflows are set under the TROA. The remaining volume of water used by the mine would come from recharge from the Truckee River upstream of Wadsworth. The rate of this water withdrawal could not be quantified in the PTI model. However, at no time would the flow reduction exceed the 0.79 cfs that the mine would be pumping.

As noted below in the response to comment 1-14, water pumped from the proposed pit would be used on-site, thereby allowing a reduced pumping rate from the well. Under this scenario the total quantity of water consumed by the project would remain the same, but groundwater removal at the pit would reduce flows in the Truckee River downstream of Wadsworth less than the predicted 0.49 cfs over a longer period of time.

Flows of 2 cfs or less in the Truckee River have occurred in about 25 % of the years for which we have streamflow records (1918-1997); however, these flows have occurred from October through March, occurring into early April in only 6 years. There would be no cui-ui in the Truckee at this time of year, because flows would be too low (during March and April) to allow spawners to ascend the Truckee from Pyramid Lake, and all cui-ui descend the Truckee to Pyramid Lake prior to October. Therefore, additional reductions of flow in the Truckee River at these extreme low flows due to pumping Alta's well would not impact cui-ui.

The present recovery program for Lahontan cutthroat trout is concerned with fish in Pyramid Lake, and the slight reduction in low flows in the Truckee River as a result of Alta's well would not be deleterious to the recovery program (Coffin 1998). Flows of 2 cfs would likely stress other fish in the Truckee River--especially coldwater species--if such flows are accompanied by higher water temperatures. As mentioned elsewhere, efforts such as the Truckee River Operating Agreement are underway to increase flows in the Truckee River so the historically low flows that have occurred may be avoided in the future.

Your comments regarding monitoring are noted and the suggestions, where feasible, are part of the DEIS. Monitoring groundwater levels at the production well is included in mitigation measures (DEIS at 4-11). Alta recently installed its production well, and the results of a short-term pump test were in close agreement with the model-predicted drawdown: pumping at 700 gpm (i.e., twice the actual proposed rate) produced 33 ft of drawdown (i.e., twice the 16.4 ft predicted by the model). However, drawdown of as much as 30 ft at the well would not be detectable at the Truckee River because water levels in the river are governed primarily by flows in the river and losses or gains to the highly conductive alluvial aquifer. Under no circumstances can the flow reduction in the river exceed the total quantity of reduced recharge caused by Alta's pumping, and this effect is averaged over a several mile-long reach of river. This quantity (predicted to be 0.49 cfs, but in no case larger than 0.79 cfs) is undetectable within the range of natural flow variations. Therefore, water level changes associated with Alta's production well could not be detected with the most sensitive water level instruments, even at the lowest historically recorded flows. For this reason, monitoring water levels in the river was, and is, not recommended.

- 1-14 All water from pit dewatering would be used for process water or dust suppression. The DEIS at 2-8 has been modified to say that the water would be used for these purposes. The portion of the sentence that said some water from pit dewatering would be discharged to surface drainages has been deleted. Nevada regulations require all such water to be put to beneficial uses.
- 1-15 The BLM believes the EIS is presented in the clear, analytic rather than encyclopedic, format described in the CEQ regulations and further explanations or descriptions in the document would not enhance insight. The SMI Baseline Report is available for review in the Carson City BLM Field Office and contains the cross-sections and tables to support the conclusions you describe.
- 1-16 This comment is contradictory. First, the comment is that the "modeling reports appear to be generally good," but then the results of the modeling are questioned. It also appears that the comments may be based on a preliminary draft of the groundwater modeling, or on the results of the horizontal modeling only. This information was used to generate only a preliminary estimate of pit inflows. Please see Appendix B of the SMI Baseline Report for a description of, and results from, the final vertical modeling report.

The TWODAN groundwater model is used throughout industry, and has been evaluated by the International Ground Water Modeling Center in Golden, Colorado.

1-17

Appendix C of the SMI Baseline Report documents the aquifer testing and the resulting hydraulic conductivities used in the groundwater modeling. The comment may be based on a review of a preliminary draft of the groundwater modeling or of the horizontal modeling alone, which was used to generate only a preliminary estimate of pit inflows (please see Appendix B of the SMI Baseline Report for the final vertical modeling results). Theoretical work has demonstrated that small-scale heterogeneities and anisotropies can be adequately simulated at the large scale using homogeneous and isotropic conditions and bulk hydraulic conductivity values. The predictive pit lake chemistry was based on conservative geochemical assumptions and realistic hydrogeologic assumptions and satisfies the requirements under NEPA.

1-18

According to information provided in the DEIS, reclamation activities for the project would be bonded as per BLM Surface Management Regulations [43 CFR 3809] and Nevada Administrative Code (NAC) 519A.350-519A.630, but it is unclear if bonding applies to the post-mining pit lake. EPA is concerned about possible long-term cumulative impacts to wildlife and groundwater supplies if actual pit lake chemistry differs from modeled values. BLM should describe its course of action if, at time of mine closure, pit lake constituents are shown to exceed Safe Drinking Water Act (SDWA) primary standards, or harm to wildlife from unanticipated pit lake toxicity is noted. Since the pit lake is projected to be only 90 feet deep, possible backfilling could be considered in case the above conditions occur. Other remedies may include the Natural resource damages assessment (NRDA) process as authorized by the Superfund Law (CERCLA) and CWA. Proper assessment of natural resource damage requires sufficient base line information and may rely on information provided in an EIS [43 CFR 11.72(c)(1)]. BLM should determine if baseline data and proposed monitoring would be sufficient for this purpose. We encourage BLM to consider bond pools and use of bond monies for pit lake monitoring programs.

1-18

Impacts to Springs

According to the DEIS, pit dewatering is not expected to have an impact on nearby springs because springs appear to be part of a perched system (SMI, 1997). However, a companion report, Spring and Seep Survey (JBR, 1995b) implies a possible connection to the regional groundwater system. The report indicates that discharge generally occurs year round and that the observed site conditions are not from seasonal snow melt alone. The FEIS should reconcile the discrepancy. We concur with recommended monitoring of selected springs; however, monitoring does not constitute mitigation. The FEIS should include mitigation provisions if springs are significantly impacted from mine dewatering or formation of the pit lake.

1-19

1-20

Other Water Related Issues

According to the DEIS, the PA would be designed as a zero discharge facility. But in the same document, pg. 2-8, it is stated that "...water pumped from the pit... could be discharged... to surface drainages." We remind BLM and Alta that such a discharge may require an NPDES permit.

1-21

INCOMPLETE INFORMATION

EPA believes that additional information should be provided in the FEIS to improve its usefulness as a decision aiding and public disclosure document (see 40 CFR 1502.21, "Incorporation by Reference"). We recommend that either the DEIS include amplified sections on effects of process water pumping, pit-related water balance modeling, predicative pit lake chemistry, and spring and seep survey and baseline geochemistry and hydrology, within the FEIS

1-22

1-19

By regulation neither the BLM or NDEP can bond for post mine monitoring. The timeframes from cessation of mining in the pit, through completion of leaching, neutralization, reclamation, revegetation, to actual final closure and total bond release is longer than the four years projected for the pit lake levels to reach equilibrium. Therefore, prior to release of the final bond (as per BLM bonding regulations), all components of the operation must meet all standards, including water quality, and pit lake monitoring would take place throughout that time, a period of time the BLM believes to be adequate for this project.

Please see Appendix B, page 5, of the SMI Baseline Report. There is no evidence that springs or seeps would be affected by mining activities. An upward regional flow component does not exist within the pit area and probably is not connected to springs and seeps within the study boundary for the following reasons.

- 1) Artesian conditions were not encountered during drilling of the wells or the piezometer.
- 2) The field-measured temperatures of collected spring samples closely mimicked the outside air temperatures (i.e., if it was cold outside, the spring and surface water samples were cold; if it was warm outside, the spring and surface water samples were warm), whereas groundwater samples from the monitoring wells were consistently warm and at a nearly constant temperature.
- 3) The water quality for seep water and regional groundwater indicate that the chemical characteristics of these two waters are distinct. This distinction in water quality was identified by comparing eight seep/spring monitoring locations and four monitoring well locations. The chemical characteristics of these two types of groundwater (monitoring well and springs/seep) can be clearly separated on a Piper diagram (a graphical representation of the major ion chemistry). Monitoring well chemistry indicates a higher relative abundance of sulfate, whereas the seep/spring chemistry indicates a predominance of bicarbonate. This distinction suggests that seep/spring water represents shallower zones of recharge from surface infiltration, whereas water from monitoring wells represents groundwater that is in contact with deeper, mineralized zones. The magnitude of concentrations of several dissolved constituents (silica, sodium, strontium, manganese, and sulfate) also indicates a clear distinction between

seep water and regional groundwater. For these constituents, regional groundwater concentrations can easily be distinguished from seep/spring water concentrations on probability graphs and frequency distribution diagrams. A memorandum regarding this analysis is on file with the BLM.

- 1-20 The drawdown cone from the pit would extend laterally as far as most of the springs but in different aquifers. Please refer to response to comment 1-19.
- 1-21 As previously stated in comment 1-14, all water from pit dewatering would be put to beneficial uses. None would be discharged to surface drainages. The Proposed Action would be a zero discharge facility. The DEIS at 2-8 has been changed to reflect this situation.
- 1-22 The BLM believes that the DEIS fully complies with the CEQ Regulations concerning incorporation by reference and appendices. All supporting technical reports are referenced in the DEIS and are available for review in the Carson City BLM office.

- 1-22 (EPA's preference), or provide appendices of the appropriate consultants' reports. For further guidance on incorporation by reference and appendices please refer to questions 25a and 25b, Council on Environmental Quality--NEPA's forty Most Asked Questions.

ALTERNATIVES

- 1-23 We recommend that BLM consider decreased or increased mining rates, as alternatives in the FEIS, pursuant to 40 CFR 1502.14(e).

CUMULATIVE IMPACTS

- 1-24 The FEIS should include a more thorough description of previous mining activities and surface disturbance, including related environmental impacts (e.g. silting effects, presence of open pits, frequency of underground workings, etc.). EPA acknowledges the DEIS disclosure that additional ore reserves have been identified. BLM properly states that any future mine expansions would require NEPA compliance. The FEIS should discuss, under cumulative impacts, the estimated water quality of an expanded pit lake, and any other projected impacts associated with a possible mine expansion, based on best available current data.

RECLAMATION

- 1-25 The DEIS states that the PA would disturb 502 acres, and all but 99.4 acres (open pits and roads) would be reclaimed. The 502 acres include 165 acres of previous disturbance, according to the DEIS. It is therefore implied that some previously disturbed areas will be reclaimed. However, the document also acknowledges that previous disturbance has "...limited reclamation suitability due to steep slopes and shallow bedrock." The FEIS should identify previous disturbance on a more detailed map, including existing placer pits, and state which areas will be reclaimed, and to what standards. EPA strongly recommends reclamation of historical disturbance where practicable and reasonable as part of the mitigation program. We also encourage reclamation concurrent with mining. BLM should consider requiring concurrent reclamation of previously disturbed areas and address these issues in the FEIS.

AIR QUALITY

- 1-26 Ore processing would include final separation of gold-silver in a furnace. The DEIS does not mention any ore-associated mercury. SMI (1997) notes a few mercury-anomalous ore samples. The FEIS should contain a discussion of any known mercury occurrences in the orebody and clarify mitigation/monitoring plans to contain potential mercury releases to the atmosphere during smelting. A mercury retort is indirectly mentioned on pg. 4-3, but not fully discussed.
- 1-27 BLM should state whether a mercury retort will be installed (under Environmental

- 1-23 The BLM does not believe that decreasing or increasing mining rates as alternatives would change the outcome or decision to be made. The impacts would be the same.

- 1-24 The BLM concludes that further descriptions of the cumulative impacts of past mining are unnecessary to reach an informed decision. Please review the general description of previous mining activities on pages 2-30 and 3-42 of the DEIS.

As stated in the DEIS and acknowledged in your letter, future mine expansion would require additional data collection and NEPA compliance. The BLM considers the general discussion of reasonably foreseeable future actions (including expansion of the mine pit) adequate. For more information a complete report of groundwater modeling is provided in the SMI Baseline Report.

- 1-25 Alta Gold Company's Olinghouse Project Plan of Operation/Reclamation Plan (with maps of existing- and post- mining topography) states that "All of the buildings as well as all roads except for the Olinghouse County Road would be removed and reclaimed." In addition, the Decision Record for the Olinghouse Canyon Exploration Plan of Operations (1995) states that Alta would assume responsibility for reclamation of existing disturbance within the Olinghouse project area.

- 1-26 Elevated mercury concentrations were detected in only one of the 13 samples analyzed as described in the SMI Baseline Report (Appendix G, page 2). Analysis of three additional samples from this interval indicates that mercury concentrations are much lower in the rock. The concentration of mercury was relatively small in the reanalyzed samples, and there is no reason to expect that there are significant amounts of mercury associated with ore or waste rock.

- 1-27 A mercury retort would be included at the Olinghouse Mine Project. Tables 2.9 and 2.10 (DEIS at 2-22) report emissions of PM_{10} from the mercury retort--maximum hourly emissions in Table 2.9 and maximum annual emissions in Tables 2.10. The DEIS at 4-3 also reports that trace quantities of hazardous air pollutants would be released from the mercury retort and are accounted for as PM_{10} emissions. It is unfortunate if the reviewer thought that all of the 0.99 tons/yr of PM_{10} reported as emissions from the mercury retort in Table 3.10 (DEIS at 2.10) is mercury, when in reality only a very small portion of these emissions is mercury, the remainder being various products of combustion.

1-27 Consequences--Air Impacts, and Proposed Action--Details of Mining and Processing Operation) and provide assurances that appropriate air quality monitoring at the plant site will occur.

TOXIC RELEASE INVENTORY REPORTING

BLM and Alta should note that on May 1, 1997, EPA added metal mining to the list of industries that will soon be subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) and section 6607 of the Pollution Prevention Act of 1990 (See 40 CFR Part 372, *Addition of Facilities in Certain Industry Sectors; Revised Interpretation of Otherwise Use; Toxic Release Inventory Reporting; Community Right-to-Know; Final Rule*, Federal Register: May 1, 1997, pages 23833-23892). Reporting for mining facilities will be effective beginning with the 1998 reporting year. The first reports from all metal mining facilities must be submitted to EPA and the State by July 1, 1999. For specific information regarding the final rule, you may wish to call Mr. Tim Crawford, EPA Headquarters, at (202) 260-1715; e-mail: crawford.tim@epamail.epa.gov.

The Washoe County Air Quality Division has not defined exposure level limits for mercury. However, screening values for acute exposure have been defined by other state agencies, and these Acceptable Ambient Concentration Levels (AACLs) were obtained from the National Air Toxics Information Clearinghouse (EPA 1997b). The 8-hour mercury AACLs ranged from 4.0^{-5} mg/m³ (Connecticut) to 5.0^{-6} mg/m³ (North Dakota).

The RFC of 3.0^{-4} mg/m³ and the lowest AACL of 5.0^{-6} mg/m³, when compared to the maximum 8-hour mercury concentration of 6.0^{-1} mg/m³ computed for the mercury retort at the Olinghouse Mine Project, demonstrate that concentrations of mercury resulting from the retort would be approximately two orders of magnitude (100x) less than the lowest AACL of 5.0^{-6} , and present no health risk.

LETTER 2, PYRAMID LAKE PAIUTE TRIBAL COUNCIL

Pyramid Lake Paiute Tribal Council

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November 14, 1997

Ms. Terry Knutson
Bureau of Land Management
Carson City District Office
1535 Hot Springs Road
Carson City, NV 89706-0638

RE: Comments on DEIS Olinghouse Mine Project

Dear Ms. Knutson:

The Pyramid Lake Paiute Tribe (the Tribe) submits the following comments on the Draft EIS (DEIS) for the Olinghouse Mine Project. Under the proposed action, Alta Gold Company (Alta) would construct a gold mining and milling facility in the Pah Rah Mountains approximately five miles west of the Tribe's reservation. The project poses significant risks of impact to the surrounding environment and Tribal resources. Those impacts, however, have not been adequately evaluated or discussed in the DEIS. The Tribe's main concerns regarding the DEIS are that 1) it fails to disclose certain impacts and dismisses others based on incomplete or inaccurate information, 2) it fails to propose or adequately evaluate necessary mitigation and reclamation measures, and 3) it completely ignores the federal government's trust obligations to the Tribe.

The DEIS for the Olinghouse project is so inadequate that the Tribe requests that the Bureau of Land Management (B.L.M.) withdraw the document and issue a new DEIS or, at minimum, a supplemental DEIS when sufficient data is gathered to accurately assess and disclose the impacts of the proposed project. 40 C.F.R. § 1502.9(a); *Animal Defense Council v. Hodel*, 840 F.2d 1432, 1439 (9th Cir. 1988) ("Where the information in the initial EIS was so incomplete

2-1

The BLM believes the DEIS to be a fully reviewed document prepared in conformance with NEPA and the CEQ Regulations.

4-16

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2-1

or misleading that the decisionmaker and the public could not make an informed comparison of the alternatives, revision of an EIS may be necessary to provide a reasonable, good faith, and objective presentation of the subjects required by NEPA.")

I. THE DISCUSSION OF POTENTIAL IMPACTS IN THE DEIS IS BASED ON INCOMPLETE OR MISSING INFORMATION

When an agency prepares an EIS, it must gather all available information about reasonably foreseeable significant adverse impacts, obtain additional information if the costs of obtaining such information are not "exorbitant," and disclose that information in the EIS. 40 C.F.R. § 1502.22. If the costs of obtaining the information are "exorbitant," the agency must admit and discuss the incompleteness of such information and its relevance. *Id.* The Supreme Court has interpreted NEPA as "requiring agencies to take a 'hard look' at the consequences of the proposed action and provid[e] important information to other groups and individuals. . . . [This] generate[s] information and discussion on those consequences of greatest concern to the public and of greatest relevance to the agency's decision." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 109 S. Ct. 1835, 1849 (1989)(citations omitted).

The DEIS issued by the B.L.M. for the proposed Olinghouse mine project fails to take the "hard look" required by NEPA. As explained more fully below, the DEIS does not disclose certain impacts and dismisses others based on incomplete or missing information. An agency "cannot avoid NEPA responsibilities by clonking itself in ignorance." *Eritofson v. Alexander*, 772 F.2d 1225, 1244 (5th Cir. 1985). However, that is exactly what the B.L.M. has done with respect to the Olinghouse project. The importance of gathering comprehensive baseline data cannot be

emphasized enough at this stage in the NEPA process, particularly in light of the fact that the proposed project appears to be just the first step in Alta's plan to develop a large mining complex.

See DEIS at 4-37; *Business Week* April 30, 1997; September 9, 1997 (attached).

1.) Ground Water

Should a catastrophic release of cyanide occur, the DEIS admits that the cyanide "might not degrade fully before reaching groundwater," but dismisses any such possibility as "remote."

DEIS at iii. The DEIS makes similar conclusions regarding the fate of other hazardous contaminants, as well. DEIS at iii.

First, the characterization that any release of contaminants from the site is "remote" is subjective and unwarranted because it is not substantiated by any detailed scientific or statistical analysis. Second, because there is a very real risk that contaminants will reach ground water (DEIS at 4-10), the DEIS must disclose and discuss potential impacts to ground water. The DEIS provides nothing more than simplistic statements regarding the fate and transport of hazardous chemicals. Assertions that releases "would be directed onto alluvial fill and ephemeral drainages downhill from the pile and both cyanide and heavy metals would be diluted by surface water or made non-bioavailable through reactions with oxygen, iron and carbonate in the soil" are not supported by detailed data and analysis. DEIS at iii. Mere assumptions do not constitute a rigorous discussion of the scope and intensity of potential impacts as required by NEPA.

The process area for the mine, which includes the 66.5 acre heap leach pad, working solution ponds, and concentrated chemical reagent storage, is located on fractured volcanic rocks. DEIS at 3-12. These rocks are often extensively fractured, particularly when they are in close proximity to major faults (as is the case in the project area). Pervasive fracturing in this area is

2-2

As mitigation for potential impacts to groundwater and the Truckee River, Alta Gold would be required to build the event pond to contain water from a 100-year, 24-hour storm event. Please refer to response to comment 1-1.

2-3

Analyzing for a leak in the HDPE liner (which also has a secondary liner and leak detection system) would require speculation and constitute a "worst case analysis" that has been revoked from the CEQ Regulations (40 CFR 1502.22). The groundwater model by PTI (1997) was specifically designed to address only the effect of pumping Alta's production on flows in the Truckee River downstream of Wadsworth. The proposed process area is west of the mountain front and outside of the model domain, with an influent flux boundary at the mountain front. Therefore, the model cannot be appropriately modified to address the issues raised in this comment. The proposed process area is now shown on Figure 3-8.

indicated by the presence of intrusive rocks and orebodies. Fractures in consolidated rocks provide a direct conduit for vertical movement of spilled contaminants down to the water table. There will be far less time or potential for chemical reaction and buffering within fractured volcanic rock compared to granular alluvial material. These conditions are not adequately described or addressed in the DEIS or in the ground-water model prepared by PTI (1997) for this project. The DEIS must analyze and address movement and travel time down to the water table through fractured rocks and show the location of the process area on an accurate and detailed geologic cross section. The scope of the ground water model must be expanded to evaluate the fate and transport of contaminants once they reach the water table, as variously described throughout the DEIS. DEIS at iii, 4-9, 10.

The DEIS does a very poor job of reporting hydrologic and water quality information in a consistent set of units, which hinders the public's ability to carefully review the project and understand its impacts. In cases where industry terminology and standard scientific units are different, both should be presented. The document should clearly state the range in concentration of the process solution in terms of mg/l along with the Federal and State standards.

For example, the federal and state standard for cyanide in drinking water is 0.2 mg/l. The concentration of sodium cyanide in the process solution is reported to be 0.2 to 0.3 lb per ton of solution. It is described in the DEIS as "low strength," (DEIS at 2-9) which may be meaningful in the mining industry, but is very misleading from a water quality perspective. A rough estimate, assuming 0.25 lb of pure cyanide per 2000 lb (32 cu.ft.) of water, is approximately 125 mg/l or over 600 times the drinking water standard. Therefore, the introduction of even a small amount of process fluid into ground or surface water could be catastrophic. The process fluid makeup

2-4

The text has been changed to reflect this comment (DEIS at 2-9). Conversion assumes 0.3 lbs NaCN per ton of solution, 100% solubility of the NaCN briquettes, and cyanide ion constituting 53% of the dissolved constituent (with the sodium ion constituting the rest). All water quality and hydrologic information in Chapters 3 and 4 is currently in standard scientific units, and in English units where reasonable (e.g., cubic feet per second or acre-ft/year for surface water, gallons per minute or acre-ft/year for groundwater, and milligrams per liter for chemical constituents in both surface water and groundwater).

- ↓
2-4 and its chemical stability should be discussed in greater detail, including all constituents and their expected average and range of concentration in all stages of the process, from mixing and application to the leach heap to "pregnant" leachate. 2-5
- 2-5 The discussion of spills of cyanide solution or hydrocarbons fails to consider impacts that could occur should contaminants be released during or after major storms. Because (normally) dry stream beds would be saturated during a storm event, contaminants are likely to flow farther from the site. The DEIS also does not acknowledge that there is surface water in tributary washes well into summer months during normal and wet years. This oversight indicates that the B.L.M. has not thoroughly or accurately examined the hydrology of the potentially affected area. 2-7
- 2-6 The size of the event pond has been increased to handle a 24-hour 100-year event (please refer to the response to comment 1-1). 2-8
- 2-6 There is a very real threat of the release of spilled cyanide solution which could be carried as far as the Truckee River from spills during major storms (not limited to 25-year storm events) or far enough to percolate from stream channels in areas with ground-water levels that are closer to the surface. In such cases both ground and surface waters could become contaminated. 2-8
- 2-7 From the information provided in the DEIS, it is impossible to confirm or calculate the rate of chemical degradation or adsorption of contaminants in the unsaturated zone of the alluvium, should contaminated process fluid reach the alluvium in Dodge Flat via tributary drainages. General statements in the DEIS to the effect that process solution contaminants could degrade naturally (DEIS at 4-9) and references to obscure publications not readily available to the general public are inadequate. A rigorous scientific analysis is required that more accurately reflects the risks faced by local inhabitants. Supporting technical data and analysis sufficient to allow evaluation of the potential threat to ground water supplies is completely lacking. 2-8
- 2-8 Furthermore, there is no analysis of contaminants remaining on site in processed material or 2-8
- Please refer to the response to comment 1-1, especially paragraph 3.
- The size of the event pond has been increased to handle a 24-hour 100-year event (please refer to the response to comment 1-1).
- The size of the event pond has been increased to handle a 24-hour 100-year event (please refer to the response to comment 1-1); therefore, no process fluids would reach the unsaturated zone of the alluvium.
- As per State of Nevada and BLM Regulations, all components of the mine would be neutralized or removed prior to final closure and bond release.

2-8 ↓ suspended in the unsaturated zone beneath the process area after project completion.

The potential for contamination of water supplies is one of the Tribe's most significant concerns regarding the proposed project. However, the DEIS has provided only a cursory examination of this issue. A comprehensive scientific analysis is needed that is based on actual soil and process solution properties. At a minimum, the analyses should include: 1) a detailed evaluation of the buffering capacity of the soils and alluvium in the unsaturated zone using actual site materials, 2) determination of the potential for remobilization of contaminants over time during periodic major storm events using local hydrologic data, 3) modeling of contaminant movement and reactivity in the saturated zone, 4) discussion of the potential for deep percolation of contaminants to the water table through preferred flow paths in fault zones and fractured consolidated rock, and 5) analysis of the stability of the contaminants over a period of several decades or more.

2.) Dewatering

The analysis of hydrological impacts on the region does not include the effect of mine dewatering. The rate of dewatering is estimated at 10 to 100 gpm which is equivalent to 16 to 160 afy. This type of "estimate," presented without supporting data and methods of calculation, is inadequate. 40 C.F.R. § 1502.24. A more detailed analysis of the rate of mine dewatering and potential increases during the projected lifetime of the mine is needed. Furthermore, the estimated ground-water depletion due to dewatering was not included in the ground-water model or the hydrologic budget presented in the DEIS. DEIS at 4-7. The recharge in the project area was reduced by 5 afy in the DEIS budget, but was not explained. The effect of mine dewatering should be included in the ground-water model of Dodge Flat, any other hydrologic analyses, and

2-9 Please refer to the response to comment 1-1, especially paragraph 3. There would be no escape of contaminants to the environment.

2-10 The supporting data for the 10- to 100-gpm pit inflow rate are presented in Appendix B of the SM1 Baseline Report.

2-11 The 5 acre-ft/year reduction in recharge in the water budget is the net evaporative loss from the proposed pit (7.3 acre-ft/year, rounded to the nearest 5 acre-ft/year; (DEIS at 4-5 and 4-7 [Table 4.2]). This represents 0.2% of the recharge to Dodge Flat from the Pah Rah Mountains. Because this change is so small, it was not explicitly incorporated into the Dodge Flat groundwater model. Furthermore, in attempting to be conservative relative to the Truckee River, all process water withdrawals were assumed to occur at the production well. Mine pit dewatering water—anticipated to be available only during the last year or year and a half of mining—would be used on-site, allowing pumping at Dodge Flat to be reduced by an equivalent amount. The analyses presented in the DEIS have considered the potential effects of mine dewatering and treated them conservatively.

2-11 ↓ the water budget.

3.) Ground Water Model

The ground-water model and the report prepared by PTI (1997) for the DEIS is very limited and simplistic. Because the DEIS relies on this source, it is critical that the public be able to independently evaluate and confirm its integrity. First, the report only addresses the proposed mine supply well in Dodge Flat. Both the Nevada Land and Resource Co. and the Tribe utilize water from that aquifer, yet these pre-existing uses were not considered. Second, the report contains no information to support the assumptions used to develop the model, including model boundaries and estimates regarding the thickness of each unit/layer. A detailed geologic map must be prepared that depicts cross sections through the project area and Dodge Flat and correctly represents the data and assumptions used to process the model. It should, at a minimum, combine an actual geologic map with a topographic base. It should then depict the location of the mine pits and process area (with data sources cited) so that reviewers can evaluate the quality of the representations and assumptions.

The report should also have disclosed any adjustments made to model structure or formulae during model calibration, along with a basis and justification for any changes. The evaluation of the calibration procedure is very important to an understanding of the model and its validity.

The model report presents a detailed analysis of recharge from applied irrigation water, but fails to include or analyze any existing or foreseeable ground water withdrawals in the model area. As previously noted, the model also excludes the effect of mine dewatering on recharge from the Pah Rah Range. These are serious omissions that will require recalibration of the model.

2-12

The groundwater modeling summarized in PTI (1997) was designed to be responsive to U.S. Fish and Wildlife Service concerns regarding the effects of pumping the Alta supply well on the adjacent reach of the Truckee River, and was not intended to be a site-wide model. The model was designed to predict only the marginal change in drawdown associated with use of Alta's production well. The tribal wells in active use, such as those at the Numana hatchery and in Wadsworth, are more closely connected to the alluvial aquifer of the Truckee River. The tribal wells that could be located on Dodge Flat were not active, nor was the Nevada Land and Water well apparently in active use. Because information on intermittent use of these wells could not be obtained, they were not included in the model. Geological data used to formulate the model, including published reports and well logs obtained from the Nevada State Engineer, were adequately referenced in the report. The proposed mine pit location is shown in Figure 1 of the report. The proposed mine process area is also within the Pah Rah range and is out of the model domain.

4-22

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2-12 The Truckee River is represented as a constant head boundary but should be represented using MODFLOW's stream routing package (STR) because of the extreme variations in flow rate and wetted area of the stream bed over a typical year. A monthly hydrograph of the effect of proposed and existing pumping on River flow is needed for the transient simulations. The transient model should also account for seasonal variations in evapotranspiration and pumping since these are greatest when river flows are lowest.

2-13 The absence of contaminant transport modeling, given the potential risks, is a serious oversight. The DEIS states that cyanide solution and other hazardous contaminants could reach the ground water table. DEIS at iii. Therefore, the flow model should be coupled with a contaminant transport model and modeling in the unsaturated zone to evaluate the fate of spilled cyanide solution under various scenarios. Scenarios should include movement through volcanic rocks on-site and alluvial material off-site.

4.) Aquifer Testing

2-14 The report on aquifer testing (SMI, 1997) is not complete. It does not provide a map showing the location of the wells relative to area geology and proposed facilities. Nor does the report discuss the materials penetrated by the wells and how their target depth and construction were determined prior to drilling or modified during drilling. The report does not even indicate whether this data is presented in other documents. 40 C.F.R. § 1502.24. In any case, it is important information that should be clearly presented in the aquifer testing document.

2-15 The purpose of the testing is reported to be for hydrologic and geochemical modeling, but the wells were not used for the ground-water flow model by PTI and no geochemical modeling is reported in any of the documents. The following questions remain: Was any geochemical

2-13

Please refer to the response to comment 2-7.

2-14

Please see Appendices A, B, and D of the SMI Baseline Report. Target depths were determined by depths to water, and monitoring wells were constructed to maximize the collection of geochemical and hydrogeologic information. Monitoring wells were constructed following ASTM Standard D 5092-90.

2-15

As described in the response to comment 2-12, the groundwater model in PTI (1997) was not designed to be a site-wide model, and the bedrock aquifer sampled by SMI (1997) was outside of the PTI model domain. The hydraulic conductivity determined for the bedrock aquifer was noted in PTI (1997) on page 9, paragraph 1, although the citation to SMI (1997) was omitted in this place in the PTI report. The materials penetrated by the SMI wells are described in the DEIS at 3-12, Section 3.4.2.1.

2-16

Please see Appendix I of the SMI Baseline Report for geochemical modeling. Please see page I of Appendix I regarding geochemical modeling.

2-16 ↓ modeling performed? What was the purpose of such modeling? Why was it not performed or, if it was, why is there no report? 2-17

5.) Hydrologic Monitoring

The ground-water monitoring programs presented in the DEIS are poorly defined in terms their objectives, schedules, sampling locations, data analysis, distribution, and proposed actions. Nor do they define the constituents to be analyzed, concentrations of key constituents at specific locations that would trigger specific actions, detailed actions to be taken with specific time frames, and the monitoring plans, periods, and action plans after facilities close.

2-17 An obvious flaw in the monitoring scheme is the inadequate number of monitoring wells down gradient from the proposed project. More monitoring wells are needed down-gradient from the process area in order to properly evaluate the critical area and pathway for potential leakage and spills of process solution. The one proposed well is not sufficient to determine background conditions or provide the information needed to make decisions regarding the movement of contaminants and effectiveness of remedial action should accidents occur.

6.) Monitoring Report

2-18 The Surface Water and Spring Monitoring Report (Shepard Miller, Inc., 1997) cannot be effectively evaluated because the data is not presented in a clear and concise manner. The data is lumped in the back of the report in such a way that it cannot be readily assessed. The illegible copies of handwritten field reports and the thick stack of lab reports bound together in an appendix are not acceptable or useful as a "report." The codes used in the lab reports and absence of a map showing locations prevent clear identification of the site and source of the samples. The report text discusses collection and analysis methods, but does not discuss or

The water quality monitoring program currently in place is a mitigation measure, and the text has been modified to clarify this (DEIS at 4-11 and 4-12). Additional specifics of a water monitoring program would be dictated by the State of Nevada in approval of Alta's Water Pollution Control Permit, issued in draft form on January 12, 1998. Monitoring at the process area is variously for Profile I or Profile II constituents, and results greater than water quality standards are actionable. In addition, the permit specifies remedial measures to be taken. The mine must also obtain a Washoe County Special Use Permit requiring demonstration of zero marginal increase in discharge to surface waters of all regulated compounds at the project area boundary. Finally, a draft closure plan is included in the Water Pollution Control permit application (JBR 1997), and, upon closure, the mine would be subject to additional appropriate permits (e.g., Reclamation permit, which specifies chemical stability). All additional requirements of the Water Pollution Control permit have been incorporated, and the text of the DEIS modified at 4-12.

We agree with the reviewers' statement that more than one well downgradient from the pit is necessary. In addition to the one well downgradient of the pit, text (DEIS at 4-12) describes the addition of three wells downgradient of the process area. These wells are also downgradient of the pit, and would provide necessary information on the response of the bedrock aquifer to pit dewatering, in addition to supplementing the leak detection system for the process area.

Please see Appendix E, Table 7 of the SMI Baseline Report and Table 5 of the report titled *Spring and Surface Water Monitoring Report, Third Quarter 1997, for the Proposed Olinghouse Open-Pit Mine, Washoe County, Nevada* (SMI 1997b). Both of these tables present the data in a clear and concise manner that shows water quality changes over time. Figure 1 in the SMI Baseline Report and Figure 4-1 in the third quarter report show the locations of the sampling stations. Section 4.0 in both reports provide discussions of the data. Page 1, sentence 1 of both reports discuss the monitoring objectives. All springs within the study area were monitored.

evaluate the data.

2-19

2-18

The monitoring data should be summarized and clearly presented in tables and graphs that can be updated in the future to show a clear variation and progression with time and with changes in flow of each source. The monitoring objectives and criteria for site selection should also be

discussed and recommendations should be made regarding the adequacy of the present monitoring program.

7.) Cumulative Impacts to Water Resources

The DEIS states that "[i]t is reasonably foreseeable that the TROA [Truckee River Operating Agreement] would benefit the Truckee and, ultimately, Pyramid Lake, and these beneficial impacts would greatly outweigh adverse impacts resulting from the proposed

2-19

Olinghouse Mine Project." DEIS at 4-41. The TROA is a separate project intended to implement the settlement agreements between various water users in the Truckee and Carson River basin.

The TROA has no obligation to address any adverse impact caused by the Olinghouse Mine Project. Furthermore, there is absolutely no basis on which to assume that the TROA will in any way mitigate or offset adverse impacts from the proposed project. Those impacts must be separately disclosed and addressed in the DEIS.

8.) Surface Water

2-20

Tables 2.3 and 2.4 of the DEIS are inadequate. DEIS at 2-15. These data were cited from a report prepared by JBR Environmental, consultants to the Alta. However, no supporting information was provided in the DEIS, nor in JBR's report regarding the determination of curve number presented in Table 2.3 or the size of the design channels and flow regimes reported in Table 2.4.

We agree that the TROA is a separate document and has no obligation to address any adverse impacts caused by the proposed Olinghouse Mine Project. We did not mean to infer that it did have any such obligation. We meant that the TROA would have beneficial impacts on flows in the Truckee River and to Pyramid Lake, and as such was one of the cumulative impacts to the area. We have modified the DEIS at 4-41 to clarify this matter.

The design calculations for the stormwater diversion channels (summarized in Table 2.4 of the DEIS) are presented in Appendix B of the Water Pollution Control Permit Application (JBR 1997c). These calculations were reviewed during the course of the EIS analysis by both the BLM and the State of Nevada and were deemed to be acceptable by both parties. The Curve Numbers presented in Table 2.3 of the DEIS were independently verified following the methods in the TR-55 manual (Soil Conservation Service 1986), which is the handbook for runoff estimation using curve numbers.

2-21

We disagree with the conclusions made in the DEIS regarding the adequacy of the proposed stormwater controls. DEIS at 4-9. Although the DEIS states that stormwater controls would be capable of handling "extreme" events, the controls are only designed for 25-year storm events, which are not "extreme." The DEIS must disclose how the stormwater control Best Management Practices would handle a larger storm, and disclose the consequences of the failure of those control systems.

2-21

The proposed stormwater controls have been strengthened by the commitment of Alta to a 24-hour 100-year event pond (see comment 1-1). Other contingency plans are included in the Spill Prevention Control and Countermeasure Plan that is part of the Water Pollution Control Permit application and is referred to in the DEIS at 2-17.

2-22

The DEIS acknowledges that the flow resulting from a 10-year storm event can be expected to reach State Route 447 as surface runoff and that a portion of that runoff would pass through the culverts under the highway. DEIS at 3-10. The working pond and event pond both are designed to contain a 25-year storm event. DEIS at 2-10. Should a storm event greater than a 25-year event occur, however, both ponds would overflow and send process solution towards State Route 447. Since only a 10-year event is sufficient to cause flow to cross the culverts and enter the Truckee River, the exceedence of a 25-year event is certain to carry cyanide, heavy metals, and other process chemicals to the River. In January, 1997, there was a significant storm event involving the drainages associated with the Olinghouse Mine Project. Due to the saturated soil conditions existing at the time, surface flows continued down Gardella Wash and ended up in the Truckee River floodplain. If this same event had occurred while the proposed mine was in operation, the river would have been contaminated with mine wastes. The gap in the protection provided by the proposed stormwater controls is not discussed or resolved in the DEIS.

2-22

Please refer to the response to comment 1-1.

9.) Acid Rock Drainage (ARD)

Acid rock drainage (ARD) is produced when rock containing sulfides is exposed to air and water during and after mining operations. Spent ore is a highly mineralized material that has been

crushed, chemically treated and allowed to oxidize in an aqueous environment during the leaching process. Mineralized ore releases a large variety of metals in addition to gold and silver. Though it is not leached, waste rock has been blasted into small pieces, which greatly increases the reactive surface area that is exposed to water and oxygen. Metals that were much less mobile in the native rock formations become much more mobile in waste rock piles. Additionally, sulfides, now in contact with oxygen, become sulfates, generating acidic effluents. Water traveling through the rock becomes acidic, and may dissolve metals such as aluminum, iron, lead, arsenic, zinc, and copper. The acid and metal-bearing water, in turn, adversely impacts water quality and aquatic habitat.

2-23

Please see Appendices G and H of the SMI Baseline Report and the responses to comments 1-11 and 1-12b.

2-24

Comprehensive static, kinetic, Meteoric Water Mobility Procedure, and whole rock tests have been conducted on the different rock types at the site. The results of these tests show that acid rock drainage would not form and that significant metals leaching would not occur from the waste rock (please see Appendices G and H of the SMI Baseline Report).

2-23

The DEIS states that there are two potential sources for ARD--the waste rock dumps and the pit walls-- but concludes, with very little explanation, that impacts from ARD will "not occur" because geochemical tests of waste rock and ore samples revealed only a small amount (1-2.2%) of acid generating material. DEIS at 3-6; 4-2.

2-24

The DEIS relies solely on the meteoric waters mobility procedures (MWMP) to determine the potential of various mineral wastes produced by the project to release metals. DEIS at 4-10. The MWMP, however, does not account for the total volume of waste rock or tailings through which rainwater percolates and does not accurately predict the total quantity of metals that can be mobilized from the heaps over the long term. Nor does this test account for the hydrologic characteristics of the waste material. In other words, the MWMP does not accurately measure the potential of mining wastes to become sources of heavy metal contamination. Comprehensive static and kinetic testing must be completed before the full extent of acid-generating potential can be reliably estimated.

2-24
↓

Should ARD actually begin to occur, the DEIS further asserts that "the mixing of such material with the surrounding acid-neutralizing rock . . . is expected to neutralize any acidic leachate which may form in waste rock or ore piles." DEIS at ii; 4-10. The DEIS references no site-specific data or studies verifying the extent to which this convenient natural phenomenon "neutralizes" the toxicity of ARD from the mine. DEIS at ii; 4-10. Again, static and kinetic testing must be performed to more accurately measure neutralization potential. Predictions concerning neutralization potential cannot rest on mere guesswork. 40 C.F.R. § 1502.24.

10.) Ore Processing System

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The discussion of ore processing for the proposed project does not contain enough detail for the public to verify the structural and mechanical integrity of the system. DEIS at 2-9, 10. For example, what is the normal expected lifespan of the plastic membrane underlying the leach pads? How will the membrane be protected from punctures both from above and below? The DEIS implies that ore will be placed directly on the membrane, where punctures would seem likely from the ore itself or from foot/vehicle traffic. DEIS at 2-9, 10. The discussion on milling does not disclose the final milled size of the ore, nor how contact between the ore and the liner will affect liner integrity.

The liner description mentions that the membrane will be underlain with locally-obtained silty clay. DEIS at 2-10. The DEIS does not disclose the final compacted permeability of the clay, nor whether anyone has performed the necessary tests to ascertain that the clay is appropriate for this crucial application, since it is inevitable that the plastic membrane will develop leaks. The DEIS must also include separate discussion of the environmental impacts of clay mining.

The area between the sump and the process building will be lined to contain spills, but

2-25

Detailed designs for the heap leaching process are included in the Water Pollution Control Permit application, which is available for inspection at the Carson City office of the BLM. The permit requirements are designed so that compliance would ensure the integrity of the system, and are based on detailed engineering designs; however, all of the details of construction are not appropriate for inclusion in the EIS. Rather, a general description is included, as in the DEIS at 2-9 through 2-12.

The surface disturbance required to obtain the locally obtained silty clay used under the liner is included in the evaluation of impacts of surface disturbance in this EIS, and requires no additional NEPA document. Borrow areas are shown on Figure 2.3.

2-25 there is no cross-sectional diagram of this liner. DEIS at 2-11. Will the liner be lain on compacted clay? Will foot and/or vehicular traffic occur on this liner in order to provide access to the sump, and how will the liner be protected from perforations from the crushed rock covering under these circumstances?

11.) Leak Detection

2-26 The discussion of the leak detection system in the DEIS states that if the volume of leakage exceeds NDEP limits only then will the leakage treated as process water. DEIS at 2-12. Once leakage is detected, the DEIS proposes taking no action for 3 to 12 months. Any significant leakage, not just leakage exceeding state limits, must be measured and sampled to ascertain the source of the water. Water containing cyanide is, by definition, process water and should be handled as such.

12.) Solution Collection and Storage

2-27 The proposed event pond is designed to contain a 25-year storm event. DEIS at 2-10. Event storage should be designed to contain the probable maximum flood (PMF). A storm greater than 25-year event will exceed the event pond's capacity and metals and cyanide would be released to the environment. The DEIS predicts that "[i]n the unlikely event that the event pond is breached or its capacity is exceeded, storage on the pad and the event pond would be increased by diking exit weirs or constructing temporary containment berms and dikes." DEIS at 4-9. No detailed information is provided in the DEIS regarding the mining company's ability to construct such containment structures in an emergency. An emergency management plan for chemical isolation for the working and event ponds, if a spill occurs, should be prepared and evaluated in the DEIS.

2-26 The DEIS at 2-12 correctly states that the detection of certain Nevada Division of Environmental Protection-prescribed leakage volumetric rates would trigger a response action by the operator wherein exceedance volumes would be managed as process water. These volumetric rates are determined by averaging the leakage flow rate of detected volumes over Nevada Division of Environmental Protection-prescribed time frames. However, the average flow rate, and therefore the requirement for a response action, bears no direct relationship to the time period utilized for averaging purposes.

2-27 Please refer to the response to comment 1-1.

2-28 An emergency management plan for any spills is contained in the Spill Prevention Control and Countermeasure Plan in the Water Pollution Control Permit application. The plan is referenced in the DEIS at 2-17.

We strongly disagree with the conclusion that "[a] catastrophic failure of the heap leach pad (as during a seismic event in excess of the design magnitude, coupled with a full or excess charge of water) is highly unlikely." DEIS at 4-9. The probability of a spill from event ponds containing toxic chemicals cannot be considered highly unlikely. In fact, based on the information presented for the event pond capacity design, it is almost a certainty that a cyanide solution spill from the event pond will reach the Truckee River. The DEIS has not disclosed or discussed that fact.

The DEIS indicates that the process area working pond and storm pond have a combined capacity sufficient to hold a 25-year, 24-hour storm event and a 24-hour drain down from the leach pad in the event of power failure. DEIS at 2-14. We consider that the protection level based on a 25-year storm is too low because the risk of having more than one failure during the 7-year period (5 years of mining operation and 2 additional years of reclamation period) is too high. The probability of more than one failure in 67 years given a facility designed at a 25-year storm event is calculated to be 21.9 percent. As indicated in the DEIS, the project could be extended further pending on additional exploration and amount of reserve. If the project life becomes 25 years, the probability of having more than one failure during the project life span is about 64 percent. The risk of failure in any given year and during the next 25 years are extremely high. The DEIS does not clearly provide sufficient details or data to evaluate whether 1) there will be sufficient pond capacity in emergencies, such as precipitation expected during a 25-year storm event, 2) the area upon which process solution will be applied if different from the leach pad area, and 3) potential variations in the rate of drain down and return of fluid in open ditches.

Using the information provided in the DEIS one can calculate the total storage capacity

2-29

Please refer to the response to comment 1-1.

2-30

A 24-hour 100-year storm event would produce approximately 15.3 acre-ft of runoff, assuming that all of the event would be runoff. A 24-hour draindown of the pad (at an average rate of 1,500 gpm) would produce approximately 6.6 acre-ft. Should the two events occur simultaneously, they would produce about 21.9 acre-ft of water. The combined volume of the working pond (4.1 acre-ft) and the event pond (22.8 acre-ft) is 26.9 acre-ft—well in excess the 21.9 acre-ft of runoff. The event pond alone has a capacity to hold the 24-hour 100-year event and a 24-hour pad draindown with nearly 1 acre-ft of capacity to spare.

2-29

2-30

required in the working and event ponds. Applying cyanide to a 66.5 acre pad at a rate of 0.003 gpm/sqft (approx 7 in./day), plus a 25-year maximum rainfall of 3 inches in 24 hours, results in a total volume of 18 million gallons. Compared to the storm and working pond combined capacity of approximately 7 million gallons (DEIS at 2-10), the combined capacity is not sufficient if both a power failure and maximum storm event occur simultaneously, which is not a remote possibility.

The DEIS does not describe the heap leaching cycles and the expected rate of drain down, so it is impossible to confirm how the BALM determined that the event ponds would have adequate capacity. In addition, the DEIS also does not address the fact that the working pond is likely to be full or partially filled with process fluid when a storm event or power failure occurs and thus will not be available for event storage.

The design storm for the solution collection ditch for the process area is based on the 100-year storm. DEIS 2-10. Since a small amount of any toxic chemical such as cyanide solution could have a detrimental effect to the endangered cui-ui and threatened Lahontan cutthroat trout in the Truckee River, the level of protection based on the 100-year storm is considered inadequate. In light of the high risk and severe consequence involved, the design for the collection ditch should be based on probable maximum flood (PMF), to provide sufficient assurance to the persistence of cui-ui and Lahontan cutthroat trout in the Truckee River.

In addition, the use of a storm duration of 24 hours is not appropriate for the size of the drainage area within the project area. The drainage area is about 6 square miles, which is relatively small. The time of concentration, which represents the time for water to travel from the uppermost point of the watershed to the basin outlet, is expected to be much less than 24 hours.

The appropriate duration for the design storm should be at the same order of magnitude as the

BLM believes that the design of the solution collection ditch for a 24-hour 100-year event is adequate. The State of Nevada established criteria for such ditches. As discussed previously, the event pond design has been enlarged to contain a 24-hour 100-year event as well (please refer to the response to comment 1-1).

The reviewer is correct that the time of concentration in these drainages is on the order of an hour or less, and that a 1-hour 100-year storm is an appropriate design storm; however, use of 24-hour 100-year design storms for stormflow channels is mandated by state law. It is unlikely that the peak runoff from a 1-hour 100-year storm would exceed that from the 24-hour storm; therefore, use of the 24-hour storm is conservative. In addition, recent work has demonstrated that events of longer duration (such as the hydrograph from a 24-hour storm) likely more effectively erode channel margins and transport sediment than shorter duration events (Costa and O'Connor 1995). Finally, Alta has agreed to increase the size of the event pond to contain runoff from a 24-hour 100-year storm, which would provide an additional level of safety regarding several of the engineered facilities mentioned in this comment.

2-32 ↓
time of concentration of the drainage area, which is believed to be one hour or less given the steep terrain and small drainage area. Accordingly, the designed capacities for storm diversion, work pond, event pond, and other spill protection facilities must be re-evaluated based on a shorter duration of storm event. 2-33

13.) Carbon Adsorption/Desorption Recovery (ADR) Plant

2-33 ↓ The DEIS explains that a "high-strength" caustic-cyanide solution would be used under high temperature and pressure in the desorption circuit. DEIS at 2-12. There is no discussion of how the solution would be detoxified in the event of a spill.

14.) Seismology

The DEIS discusses the history of seismic activity in the project area and predicts a high potential for seismic activity in the future. DEIS at 3-4. The DEIS even admits that an earthquake "could cause extensive damage to structures and cause pit, waste rock, and leach pad slopes to fail." DEIS at 3-51. Nowhere does the DEIS specifically discuss whether the leach pads, waste rock dump, and process system will be constructed so as to resist seismic activity. The DEIS mentions only that "structural facilities" will be earthquake resistant. DEIS at 3-51.

2-34 ↓
Are the planned slopes and grades approved to withstand earthquake intensities of VIII to IX?
Are the liner systems for the pad and process areas approved for use in seismically active areas?
Will storage tanks be bolted to concrete pads to prevent overturning? How will hazardous chemical storage practices accommodate an earthquake? Will plumbing carrying process solutions meet applicable earthquake codes?

The DEIS needs to specify whether structure and facility design will resist ground-shaking, surface rupture, or both. Designs must take surface rupture into account due to the

Spills of the high-strength caustic-cyanide solution would flow to a floor sump and be pumped to the working pond, as described in the DEIS at 2-12. Operation of the facility would be in compliance with regulations set by the State of Nevada.

2-34 The heap design incorporates the seismicity of the area--in this case an earthquake with a magnitude of 7.2 on the Richter Scale. Heap leach design must meet design criteria to withstand such an earthquake. Both the waste rock dump and the pit would be constructed with slopes in accordance with regulations set by the State of Nevada (3:1 for reclamation), which are designed to minimize movement during a seismic event. Any seismic event affecting the pit would only result in some sloughing of material from the pit walls--material that would roll downhill into the pit--and would result in negligible environmental affects. Because of the location and characteristics of the waste rock dump, the only movement that could occur would be down from the toe of the dump (it is confined by topographic features on the top and the sides). With 3:1 slopes, this movement would be limited and would have negligible environmental affects.

2-34 project area's proximity to potentially active faults. There is a high degree of uncertainty in predicting the location of future ground displacement. If a surface rupture occurs, cyanide and metals will be released from the leach pad and ponds.

2-35 In addition, the DEIS needs to discuss the potential impacts caused by a collapse of leach pads and the waste rock dump both prior to and after reclamation occurs.

15.) Wildlife and Avian Surveys

2-36 The DEIS rests many of its assumptions regarding the impacts to birds and wildlife (except bats) on a seven-page Wildlife Baseline Report prepared by a third-party consultant (JBR 1996c). Unfortunately, neither the DEIS nor the Wildlife Baseline Report provide enough technical documentation to allow the public to verify the integrity of the surveys, much less make informed comments concerning potential impacts to these species. To comply with NEPA, an EIS "must ensure that environmental information is available to public officials and citizens." 40 C.F.R. § 1500.1(b). The EIS must "explicate fully its course of inquiry, its analysis and its reasoning." *Silyn v. Lynn*, 485 F.2d 1282 (1st Cir. 1973). There is spotty information in both documents as to what types of surveys were conducted, what species were surveyed, or when surveys were conducted (if at all). The Wildlife Baseline Report also relies heavily on personal communication, which cannot be inspected or verified by the public. 40 C.F.R. § 1502.21 ("No material may be included by reference unless it is reasonably available for inspection by potential interested persons.") Statements regarding impacts to birds and wildlife are vague and conclusory, with scant scientific support. The regulations implementing NEPA require that "statements . . . shall be supported by evidence that the agency has made the necessary environmental analyses." 40 C.F.R. § 1500.1(b). The BALM is also required to "insure the

Both the leach pad and the waste rock dump are designed to prevent collapse either before or after reclamation occurs.

2-36 The Wildlife Baseline Report prepared by JBR Environmental Consultants, Inc. was based on surveys performed from fall 1994 through winter 1996, and included citations of several pertinent publications concerned with wildlife in the area. Much of the local information resides with the Nevada Division of Wildlife (NDOW); therefore, personnel from that agency were consulted. During preparation of the DEIS, additional contacts were made with NDOW personnel. NDOW agreed with the conclusions of the DEIS (see comment letter 38). NEPA (at § 1500.1 (b) states that "...NEPA documents must concentrate on issues that are truly significant to the action in question, rather than amassing needless detail." Wildlife concerns, other than threatened and endangered species, were not significant in the Olinghouse Mine Project.

2-37 Use of personal communications as references from other sources is fully within the CEQ guidelines and regulations.

professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." 40 C.F.R. § 1502.24. Neither requirement has been met in the DEIS. "A conclusory statement 'unsupported by empirical or experimental data, scientific authorities, or explanatory information of any kind' not only fails to crystallize the issues, but 'affords no basis for a comparison of the problems involved with the proposed project and the difficulties involved with the alternatives.'" *Silva*, 482 F.2d at 1285 (citations omitted).

16.) Reptile and Amphibian Surveys

No surveys for reptiles or amphibians appear to have been completed, although habitat for several species exists in the project area. What statements do appear in the DEIS are supported by a citation to personal communication, which the public cannot confirm or inspect. Not surprisingly, the DEIS states that reptiles and amphibians will be affected by the proposed project by direct mortality and habitat destruction, however, there is no attempt to quantify or mitigate those impacts. DEIS at 4-18. Reptile and amphibian surveys must be completed so that impacts can be more accurately determined and disclosed to the public.

17.) Big Game

A number of big game species occur in the project area, DEIS at 3-26, and the DEIS admits, only vaguely, that there will be impacts. DEIS at 4-17. Specifically, the DEIS states that pronghorn antelope and mule deer will either habituate to mining activities or be displaced. DEIS at 4-17. The DEIS provides absolutely no support for that statement. Should these animals be displaced, the DEIS assumes, again without explanation or factual support, that these animals will find suitable habitat. The DEIS also does not disclose whether mining activities will impact pronghorn antelope migration or calving. These issues must be analyzed and discussed in the

2-38

The reptiles and amphibians observed in the project area are common species, and the DEIS states that there would be impacts to these species due to habitat destruction and direct mortality. These impacts are impossible to quantify, except that it is reasonable to believe that they could occur on any disturbed habitat. The DEIS specifies that 502 acres of habitat would be disturbed (DEIS at 4-17). Reptile and amphibian populations were not identified as significant in the Olinghouse Mine Project.

2-39

The DEIS (at 4-17) statement that mule deer and pronghorn would either habituate to mining activities or be displaced is based on the behavior of these species under similar circumstances. Both species have a high tolerance for human activity, especially when such activity is reasonably predictable. Neither species is presently considered to be at carrying capacity for the habitat by the Nevada Division of Wildlife—the agency most familiar with the respective herds and responsible for their management; therefore, it is reasonable that animals displaced from the relatively small area to be disturbed would find suitable unoccupied habitat. Neither species is present in high numbers in the project area, and potential impacts to either species were not considered as significant in the project. Disturbance to wildlife is temporary, and postmining conditions would again provide habitat for these species.

The DEIS (at 4-17) states that "no crucial ranges for any big game species occur on the project area". This statement includes calving grounds and migration corridors, and was determined in consultation with the Nevada Division of Wildlife.

2-39 DEIS.

18.) Bighorn Sheep

The project area is in the range of a small population of Bighorn sheep, a sensitive species, and the state plans to release additional sheep in the area in an attempt to re-establish populations.

DEIS at 3-30. The DEIS states that Bighorn sheep will not be affected by mining activities

(DEIS at 4-18, 19), but provides no support for that statement. The DEIS must assess whether the proposed project will affect migration routes, fragment habitat, or impact lambing areas.

Marble Mountain Audubon Society v. Rice, 914 F.2d 179, 181-82 (9th Cir. 1990) (Forest Service violated NEPA by failing to take a "hard look" at the impacts of a proposed timber sale on wildlife through cutting off biological corridors and fragmentation of wildlife habitat).

19.) Game Birds

The DEIS states that habitat for chukars and Mourning doves exists in the project area and that existing water supplies have been supplemented by guzzlers. DEIS at 3-28 The DEIS does not indicate where those guzzlers are or whether they will be impacted by the mine project.

20.) Bats

The DEIS states that the project area contains habitat for eight species of bats identified by the USFWS as species of concern, as well as more common bat species. DEIS at 3-26.

Individuals from three bat species were identified and others were observed, but not identified to the species level. DEIS at 3-27. The DEIS identifies several sites within the project area that appear to be actively used by bats for roosting and nursery purposes and acknowledges that there are additional sites that were not surveyed, but have high potential for bat use. DEIS at 3-26-27. Without any factual explanation or support, the DEIS concludes that once bats are "evacuated"

2-40

The Nevada Division of Wildlife was consulted on the matter of impacts to bighorn sheep, since they are the agency with the responsibility for managing these animals. They concur with the DEIS at 4-18 that the sheep population would not be affected by the project.

2-41

None of the existing guzzlers would be affected by the mine project. Alta would install one new guzzler in a location to be chosen by BLM and NDOW (see Section 5.11 in this FEIS).

2-42

It is reasonable to assume that bats evacuated from the two shafts and nine adits disturbed by mining would find suitable adjacent habitat because, as a mitigation technique, Alta would modify selected tunnels and adits by clearing debris and reinforcing entrances to ensure their continued existence (DEIS at 4-18). It should be noted that the number of bats documented in the project area, as well as at individual sites was characterized by JBR Environmental Consultants, Inc.—the consultant that conducted bat studies—as "small to moderate".

The ecological risk assessment found no risk to bats from chemical constituents in pit lake water (DEIS at 4-18). Townsend big-eared bat was one of the species evaluated in the risk assessment.

2-42

from shafts and adits (which will be sealed), they "would most likely find suitable adjacent habitat." DEIS at 4-18. The DEIS also does not address or explain potential impacts to bats from the light and sound produced during mining and milling activities, or from exposure to contaminated water in ponds.

21.) Cultural Resources.

A cultural and spiritual understanding exists between all things created and the manner in which every living thing interacts and survives. Out of respect for this life cycle, Tribal members stress the importance of preserving habitat at every level and in not destroying the environment.

The Pah Rah Mountains served as a hunting and migration area for the Tribe's ancestors. The mountains, including the proposed project area, are part of our ancestral and aboriginal territories and have been used for hunting, gathering, habitation, and ceremonial purposes. The DEIS fails to address how mining activities, including blasting and digging, will impact artifacts left by our ancestors. The DEIS also fails to discuss to risk of impact to ethno-medicines.

2-43

Furthermore, the DEIS does not propose strict monitoring or protection measures to ensure that pieces of our cultural heritage are not destroyed. The DEIS simply states that "mitigation plans would be developed and implemented, as appropriate, for cultural sites identified[.] Specific mitigation steps have not been identified and, there is no assurance that the Tribal input will be included in developing mitigation, or whether the Tribe will receive copies of monitoring reports. Most importantly, there is no discussion of whether mitigation would be effective to protect these precious and irreplaceable resources. These issues must be fully disclosed and discussed in the DEIS.

22.) Noise

2-43

The Olinghouse area has been the site of repeated mining episodes for the past century. The general setting, which was originally altered as a result of mining activity in the early twentieth century, would not be significantly changed as a result of the proposed action. The actual mine area and waste rock dump would be in an area historically changed by previous mining.

The proposed process area would be located in a previously undisturbed area, but is limited in size and represents an insignificant acreage compared to the whole of the undeveloped Pah Rah Mountains. The process area was inventoried for cultural resources and no significant prehistoric cultural resources were identified in that area, nor were any traditional cultural properties. Adequate consideration has been given to the "artifacts left by the ancestors" through the cultural resource inventory process, which identified no cultural resources in the areas of disturbance proposed by this project. The DEIS references this inventory which speaks to the issue of how mining activities would impact those artifacts.

Regarding the risk to ethno-medicines, there would be a loss of vegetation, including plants utilized for ethno-medicinal purposes, associated with mine development. As a result of a field visit with several tribal elders, however, no medicinal plants unique to the project area were identified. Those plants that were identified as medicinal are widespread throughout the Pah Rah area and the Great Basin, and the loss of vegetation resulting from mine development would be small when put in the context of the local medicinal resource base as a whole.

Monitoring and mitigation has not been proposed for the mine plan area because significant prehistoric resources were not located within the areas proposed for disturbance. Four prehistoric sites were identified that are potentially significant, but these sites are well away from proposed disturbance areas and avoidance is always the preferred treatment. Should the identified resources become threatened, a treatment plan would be developed to ensure that the resources receive adequate mitigation (see Section 5.3 of this FEIS).

The discussion of impacts from noise in the DEIS does not address noise levels at the site, 2-44 but instead focuses solely on noise perceived by distant communities and by humans. DEIS 4-27. This discussion is inadequate. The DEIS must address localized impacts in the project area, as well as impacts to wildlife.

In addition, the estimated noise levels have been measured using the dBA frequency scale which, by definition, suppresses lower frequencies. DEIS at 4-27; 8-2. Low frequency sound, such as blasting, earth moving, truck hauling, and ore processing, is the major source of noise from the proposed project. These sounds may travel longer distances or preferentially disturb specific classes of wildlife, such as ground-dwelling animals. Because mining activities produce a preponderance of low frequency noise, the DEIS must discuss the impacts of this noise and employ measurements which accurately represent their intensity.

There will also be noise impacts arising from sources outside the project area. Specifically, the DEIS predicts a 14-28% increase in traffic through Wadsworth. DEIS at iv. Those impacts have not been disclosed or discussed in the DEIS.

2.3.) Air Quality

The DEIS concerns itself with only one air pollutant, PM₁₀. DEIS at 3-7. However, the re-authorized Clean Air Act now directs the EPA to regulate PM_{2.5}, and it is extremely likely that at some time during the operation of the mine, the new regulations will take effect. The DEIS must address this eventuality and discuss the ability of the mine to control fine particulate emissions.

The DEIS also mentions that the region is currently a non-attainment area for ozone. DEIS at 3-7. Elsewhere in the DEIS, there are references to increased traffic due to mine

Noise analysis focused on human "sensitive receptors", primarily the occupied residences referenced in the DEIS at 4-27. The A-weighting scale (dBA) was used because it most closely approximates human hearing response. Noise levels on site would be limited by federal law to those deemed safe and acceptable for workers.

There is no evidence that any wildlife species on the project area are especially sensitive to noise. There are no raptor nests or sage grouse leks, for instance. The DEIS does state that the proposed project would displace some wildlife from the project area.

The BLM has chosen Alternative A as its preferred alternative. Therefore, mine traffic would use the alternative road and would not pass through Wadsworth.

Several air quality parameters were considered in the DEIS other than PM₁₀ (DEIS at 4-3).

The EPA does not presently regulate PM_{2.5}.

Neither Washoe County nor the State of Nevada requires modeling of emissions from mobile sources. The additional emissions from the small increase in traffic associated with the mine, when compared to the magnitude of existing emissions from such sources in the airshed, is insignificant.

2-45 construction operation (DEIS at iv), however, the impact of vehicle emissions on air quality is not addressed. Although the area may be designated as "attainment" at some unknown time in the future, the DEIS must discuss current conditions and impacts and evaluate whether those impacts will jeopardize the attainment designation.

2-46 The DEIS states that 99 tons of PM_{10} will be emitted per year from mercury retort. DEIS at 2-22 The mercury retort is not described anywhere in the DEIS, and it is not clear what this apparatus is, much less whether it produces mercury fumes, particulate, or other hazardous materials that would have an impact on air and water quality. Airborne emissions of pollutants from the proposed mine are not confined to the mine site, and will almost certainly drift into the surrounding airshed. The DEIS fails entirely to discuss air pollution impacts off the mine site. This violates NEPA's requirement that an EIS discuss all direct and indirect impacts, including those which are "farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(b).

24) Mercury

2-47 Historically, mercury was used to recover gold from ore at process mills in Olinghouse Canyon. John M. Townley, Olinghouse Mining District, Powder Box Mining Series No. 1, at 24. It is also reasonable to assume that mercury was used at Green Hill and Frank Free Canyon. The DEIS does not acknowledge that mercury was used in the area historically, nor have any tests been done to confirm the presence or absence of mercury in the soil. The proposed mining activities pose a risk of remobilizing old mercury, and because mercury bioaccumulates, release from the Olinghouse site poses a serious risk to ground and surface water and downstream fisheries. The Carson River is currently plagued with mercury pollution from historic mining.

Please refer to the response to comment 1-27.

The results of surface and groundwater analyses show no evidence of mercury from historic mining activities in the vicinity of the proposed mine. One groundwater sample (and its field duplicate) were found to contain detectable concentrations of mercury, even when using clean sampling techniques and low detection limit analytical methods (Table 9 of Appendix F of the SMI Baseline Report). The mercury concentration in this one groundwater sample was extremely low (1.6 nanograms per liter [ng/L], or 0.0000016 mg/L). Mercury concentrations in seeps and surface waters near the proposed mine site were also below detection (<0.0002 mg/L). There is absolutely no evidence that mercury from historic activities in the area persists at the proposed mine site. Sediments from Olinghouse Creek collected from below drainage from the proposed pit area and analyzed in July 1996 contained less than 0.2 mg/kg mercury (PTI 1996).

The reviewer is concerned that mercury from historic mining activities exists and has the potential to become remobilized during proposed mining activities. Mercury could reach the Truckee River only through overland transport during an extreme flood event. A flood event of this size would remobilize mercury on its own regardless of mining activities.

2-47 The DEIS must disclose and assess this issue.

25.) Access

Impacts from increased traffic volumes through the community of Wadsworth are not adequately disclosed or analyzed in the DEIS. Chemicals that will be hauled to the mine have not been identified nor quantified. Without this information there is no way to assess the risk that 12 additional truck trips per day through Wadsworth will pose to residents and children who attend school along the access route. The DEIS does not disclose if any of the additional 228 car trips per day will include smaller vehicles that will be hauling chemicals to the mine. The DEIS vaguely addresses potential injuries from vehicular traffic in residential areas, and did not disclose or discuss potential impacts to public health and Tribal emergency response groups from chemical spills.

Should the BLM decide that Alternative A is the preferred alternative for access to the mine, it must analyze and discuss the impacts of this alternative. Specifically, the DEIS must discuss impacts to cultural resources and wildlife habitat from the additional soil disturbance and must analyze and explain in detail what steps will be taken to safely protect the underground gas pipeline under the road from mine traffic (including heavy trucks). Soil around the pipeline must remain uncompacted to preserve and maintain the pipe's flexibility.

II. THE DEIS FAILS ADEQUATELY TO DISCLOSE AND EVALUATE MITIGATION MEASURES

In discussing various impacts to the existing environment, the DEIS either fails to explain what mitigation measures will be taken to offset impacts or has not discussed the effectiveness of

2-48

As previously discussed in the response to comment 2-44, the BLM has chosen Alternative A as its preferred alternative. Therefore, mine traffic would use the alternative road and would not pass through Wadsworth. This alternative access route follows a right-of-way on public land issued to Southwest Gas Pipeline (R/W Nev-060169, issued in 1963).

The DEIS does identify and quantify chemicals that would be hauled to the mine (DEIS at 2-16); however, none would be transported through Wadsworth.

2-49

Alternative A is the preferred alternative for access to the mine. All but two very small sections of the existing pipeline road is on private land, within an existing Southwest Gas right-of-way authorized in 1963. A cultural inventory has been completed on the two small sections on public land and Section 106 consultation is in progress. There would be no additional surface disturbance for the upgrading and improving of the existing road. The pipeline road does not run over the pipeline but is adjacent to it. The Alternative A access road would not be used as an ore haul road but as a mine access road only, heavy mine trucks would run on the haul roads within the mine only.

measures that have been proposed. NEPA requires that "mitigation be discussed in sufficient detail to ensure that environmental consequences have been fairly evaluated." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352, 109 S. Ct. 1835, 1847 (1989) (explaining that while NEPA does not have a substantive requirement that a complete mitigation plan be actually formulated and adopted, it does require that mitigation be discussed sufficiently in order to ensure an informed decision of the environmental consequences). A mere listing of mitigation measures is insufficient to satisfy NEPA. Rather, the "EIS must analyze the mitigation measures in detail and explain the effectiveness of the measures." *Oregon Natural Resources Council v. Marsh*, 832 F.2d 1489, 1493 (9th Cir. 1987).

Full discussion of various mitigation measures and their potential effectiveness is required not only by NEPA, but also by FLPMA, which requires the Secretary of the Interior to "take any action necessary to prevent unnecessary and undue degradation of the [public] lands." 43 U.S.C. § 1732(b).

1.) Erosion

Soils in the project area are of very poor quality and are highly susceptible to wind and water erosion. DEIS at 4-13. Not only are roads and soil piles at risk of failure, but soil erosion also causes stream sedimentation and loss of aquatic habitat. The highest risk of sedimentation will occur during reclamation, when topsoil is spread throughout the project area for reseeded. DEIS at 4-8. There is no attempt to quantify or characterize the amount of soil erosion or its impacts in the DEIS. Nor does the DEIS set forth comprehensive, site-specific steps to mitigate erosion during mine operation or during reclamation. Rather, it lists a few vague mitigation measures, drawn from separate documents, that will purportedly control erosion. DEIS at 4-12,

2-50

The results of soil erosion modeling using the Revised Universal Soil Loss Equation program for the waste rock pile—the most significant source of soil erosion in Frank Free Canyon—are described in the DEIS at 4-8, and estimates of soil erosion from new haul roads using the same methods are presented in the DEIS at 4-9. Additional erosion control measures proposed by Alta are described elsewhere in the DEIS (e.g., in their Reclamation and Water Pollution Control permit applications, summarized in the DEIS at 2-19, 20), with specific design details described in full in the respective application documents. These erosion control measures, such as silt fences and straw-bale debris dams, are very effective when properly placed. However, the exact placement of these structures is highly sensitive to site-specific features too small to show on design documents, and therefore must occur in the field immediately prior to or during construction. Finally, a sedimentation/evaporation pond is proposed for Frank Free Canyon as mitigation for erosion from the waste rock dump. Given the runoff control for the dump and the highly intermittent nature of surface water flows in lower Frank Free Canyon, even the smallest dam would have a trap efficiency (i.e., the ratio of sediment inflow to outflow) of very nearly 1.

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13. The success of final reclamation depends on the availability of sufficient topsoil. The DEIS must discuss more aggressive methods of retaining topsoil besides placing it in stockpiles. 2-51

2-50 ↓
The DEIS cannot only identify, but it must evaluate proposed mitigation measures for erosion. "A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA." *Northwest Indian Cemetery Protective Ass'n v. Peterson*, 795 F.2d 688, 697 (9th Cir. 1986), *rev'd on other grounds sub nom Lyng v. Northwest Indian Cemetery Protective Ass'n*, 485 U.S. 439 (1988). The DEIS should have disclosed all erosion mitigation measures and technologies and evaluated their effectiveness.

2) Acid Rock Drainage

Without any data to substantiate its position, the BLM repeatedly states that ARD will not be a problem at the mine, either during its operation or after closure. DEIS at ii, 2-23; 3-4; 3-6. The DEIS fails to specify if this necessary data is lacking because it is unavailable or because it simply has not been collected. 40 C.F.R. § 15202.22. However, since Alta must have performed numerous tests on the orebody to determine its gold content, there is no reason why similar data on the acid-generating potential and acid-neutralizing potential of the ore and waste rock could not have been collected and reported in the DEIS. 2-51

2-51 ↓
Moreover, the DEIS fails to specify how data on the acid-generating potential of the waste rock during mine operation will be collected and analyzed. It is standard operating procedure for mining companies to analyze samples from each blasthole for gold content as the pit is developed. The BLM should require the Alta to analyze each blasthole sample, determine the rock type, measure the total sulfur content and paste pH, and determine the ratio of neutralizing potential to acid-generating potential of the rock. Only after this data is collected can the DEIS

Please see the responses to comments 1-12b and 2-24. There is no evidence of significant acid-generating potential at this site; therefore, the suggested analysis of each blasthole sample for rock type, total sulfur, paste pH, and ratio of acid-neutralizing potential to acid-generating potential would be unnecessary.

draw conclusions about the environmental impact of waste rock disposal.

The DEIS must also discuss the remedial actions proposed if it is determined that the waste rock is acid-generating. For example, will the contaminated effluent from waste rock piles be captured and treated? How will final reclamation plans be changed to isolate acid-generating waste rock from contact with rainwater and snowmelt? The answers to these crucial questions, which should have appeared in the DEIS, cannot be answered until the BLM collects and analyzes the necessary data.

3.) Wildlife Exposure to Contaminated Water

The DEIS states that "areas where [cyanide] solutions are exposed to the surface" will be enclosed by netting material to prevent access by birds. DEIS at 4-8. There is no mention of the size of the netting mesh nor is there any discussion of the ability of the mesh to withstand inclement weather or winds, events which have plagued installations of bird netting elsewhere.

The DEIS does not discuss alternative wildlife control methods such as chemical repellents and floating barriers or taking steps to neutralize the cyanide solutions in the tailings ponds to nonlethal levels, as has been done by most cyanide operators as a fail-safe in case the netting fails.

Failing to protect migratory bird species adequately from poisoning constitutes a violation of the Migratory Bird Treaty Act. For the BLM to allow such poisoning would violate the plain language of FLPMA's implementing regulations by allowing a violation of environmental law. 43 C.F.R. § 3809.0-5(k)(4) Failing to disclose such impacts also violates NEPA. 40 C.F.R. § 1502.16.

Another concern is that the DEIS fails to mention that netting for bird control may not protect bats, as bats require special netting. The DEIS must discuss the efficacy of netting in

2-52

The size of mesh used to net the ponds would be determined when the artificial pond permit is issued by the State of Nevada, and would be based on experience with similar situations encountered within the State. Netting would be designed to withstand the elements and to prevent violations of the Migratory Bird Treaty Act. Alternative control methods would not be necessary.

There are no tailings ponds associated with the Olinghouse Mine Project.

2-53

The netting used for bird control would have a mesh size that would prevent bats from accessing the netted ponds. As stated in the DEIS at 4-18, pit lake water quality would pose no risks to bats, nor would insects hatched in the pit lake. Any pond that posed a threat to bats would be netted.

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2-53 protecting bats, not only in the context of preventing bats from drinking contaminated water, but also from feeding on insects contaminated with mining wastes.

4.) Seeps

2-54 The DEIS states that 17 seeps/springs were located in the project area and that the seeps/springs likely qualify as jurisdictional wetlands. DEIS at 3-25, 26. Nevertheless, one seep will be covered by the proposed waste rock dump in Frank Free Canyon. DEIS at 3-9, 4-16. The DEIS does not indicate whether this seep is one of the 17 seeps/springs that have been classified as jurisdictional wetlands. If so, the DEIS must disclose that regulatory requirements in Section 404 of the Clean Water Act will apply. The DEIS also must propose measures to mitigate for the loss of this seep.

2-55 The seeps are described in the DEIS as "originat[ing] from perched groundwater." DEIS at 3-12. The term perched implies that there is an impermeable barrier that holds water at a particular level. Will these barriers be breached by drilling and mining activities, resulting in the ultimate loss of seeps?

5.) Surface and Groundwater Monitoring

2-56 The simple unfortunate fact is that mining affects ground and surface water, and the mine proposed here is no exception. The DEIS outlines a voluntary program of surface and ground water monitoring (DEIS at 4-11,12), but water quality monitoring, as a means of mitigating environmental impacts, cannot be voluntary. In addition, the semi-annual monitoring proposed is inadequate. Surface water quality in impacted drainages, i.e., drainages where any part of the mine facilities are located, should be monitored during every month when there is flowing water in the drainage and after all significant storm events. Ground water should be

2-54 Please refer to the response to comment 1-10.

2-55 Please see Appendix B, page 6 of the SMI Baseline Report and the response to comment 1-19.

2-56 Surface and groundwater monitoring is a part of the Water Pollution Control Permit issued by the Nevada Division of Environmental Protection. The BLM cannot approve the plan of operations prior to Alta's acquisition of all permits pertinent to their operation.

monitored at least quarterly.

In addition, the list of parameters proposed on p. 4-12 is inadequate to thoroughly characterize the impacts of mine activity. The following parameters should be added to the list: copper, zinc, lead, mercury, cadmium, and total cyanide. Without this bare minimum of data collection in place, the BLM cannot assure that impacts from the mine will be adequately assessed in time to implement any necessary remediation measures.

6.) Water Consumption

The proposed project would remove millions of gallons of water from regional aquifers and, because evaporative losses will be high, this water will be permanently removed from the watershed. For example, evaporative losses from the leach pad will remove 158 billion gallons of water annually. DEIS at 2-11. A total of 187 billion gallons will be pumped annually from the freshwater pond. DEIS at 2-13. Moreover there is no discussion of water losses due to the pit lake. Currently this watershed has no large exposed water bodies, but this project will result in the formation of a 3.4 acre lake, a relatively large evaporative surface. Ground water, previously protected from evaporation, will flow into the pit where it will be lost from the watershed for as long as the pit exists - essentially forever. There is no discussion anywhere in the DEIS regarding means to mitigate water loss. Instead the DEIS merely claims the removal of water from the watershed will have minimal impact on the environment.

7.) Access

Mitigation measures proposed to alleviate impacts from mine access, such as a parking area in Wadsworth, signing, and the enforcement of speed limits, would use Tribal monetary and personnel resources. The impacts to Tribal resources arising from implementation of those

2-57

Thank you for your comment. We are, however, unable to reproduce the numbers you present as evaporative losses. The leach pad would require 300 gpm to replace evaporative losses (DEIS at 2-11), or 158 million gallons/year [300 gallons/min x 60 min/hr x 24 hr/day x 365.25 days/year]. Similarly, the pond would have 187 million gallons moving through it per year, much of which would be evaporated on the heap leach pad (therefore, including rather than in addition to the 158 million gallon/year evaporative losses from the leach pad). To put these numbers in context, the 187 million gallons is equal to approximately the estimated 350 acre-ft/year of recharge from the project area [i.e., a portion of the Pah Rah Range] to Dodge Flat. Finally, as described in the response to comment 2-11, the net annual evaporative loss from the ultimate pit lake (7.3 acre-ft/year, or 2.4 million gallons per year) was listed in the DEIS at 4-10, with the calculations described in Appendix B, page A-19 of SMI (1997). Alta has existing water rights in Olinghouse Canyon to accommodate this long-term water loss.

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Please refer to the response to comment 2-48.

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2-58

2-58 † measures have not been disclosed or discussed in the DEIS.

III) THE DEIS DOES NOT ASSESS THE EFFECTIVENESS OF PROPOSED RECLAMATION MEASURES

The proposed time period for mine and process area reclamation, provided that Alta does not expand its facility, is expected to be two years. No specific criteria regarding completion or enforceable guarantees are provided. The DEIS only briefly discusses proposed reclamation measures. DEIS at 2-19, 10. Acceptable concentrations of hazardous constituents in the processed heap and leachate after mine closure should be specified. A detailed explanation of the basis for the estimates of the detoxification period is needed. The procedure and criteria to be used by NDEP to determine final closure should also be discussed. The scientific and engineering basis for and definition of the uncertainty of complete detoxification within two years is also needed. The mine operators should be required to continue monitoring and remediation until the acceptable limits are reached and provide financial guarantees to ensure the process can be completed in their absence.

1.) Mine Pit Reclamation

Under the proposed project, the mine pit will be left in its "final mining configuration" and is expected to fill with water to a depth of 90 feet. DEIS at 2-19. A five-foot berm and an undisclosed number of signs are to be erected at accessible portions of the pit. DEIS at 2-19.

The DEIS also claims that "mine shafts, portals, adits and tunnels encountered in the pit will be sealed." (DEIS at 2-10) but does not explain how this will be accomplished when part of the pit will be submerged under water. No alternative protective measures, such as fencing or

2-59

The heap leach operational design incorporates provisions for retaining all solubilized constituents within the process facilities' operating and/or event ponds, the design capacities of which have been modified to handle a 24-hour 100-year event (refer to response to comment 1-1). Reclamation and closure of the facilities is administered under Nevada Administrative Code 445A.447, which in part requires the operator to submit a final plan for permanent closure to the Nevada Division of Environmental Protection for any source that has been identified as a process component at least two years before the anticipated permanent closure of that process component. Further, Nevada Administrative Code 445A.446(3) states that there would be an established monitoring period required following actual closure. The Nevada Division of Environmental Protection, under Nevada Administrative Code 445A.424(2), retains the authority to regulate the degradation of waters of the state with respect to concentrations of cyanide and may establish a numerical limit for "any constituent...which may reasonably be expected to be discharged by the facility in sufficient volume and concentration to cause an adverse impact on human health." Therefore, there are regulatory mechanisms in place to address ultimate facility closure, and it is viewed as premature at this point for the EIS to speculate on post-closure constituent concentrations or address specific containment procedures.

2-60

Sealing of mine shafts, portals, adits, and tunnels would be completed at the height of mining when the pit is dry. For discussion of pit backfill see response 2-23. Long-term maintenance of a fence around the pit would be impractical to maintain and impossible to keep out wildlife. The claim owner is responsible for long-term maintenance of signs and berms as long as they hold the mining claims. If the claims are let go or are no longer valid the BLM would be responsible for the public safety.

2-60 backfilling were analyzed or discussed and the DEIS makes no attempt to evaluate whether the proposed measures will protect humans and wildlife. The DEIS should also discuss and identify who will be responsible for long-term maintenance of the signs and berm.

2-61 The proposed pit lake will be a permanent hazard to ground-water since any toxic material dumped into the pit lake would enter and flow down-gradient toward wells and surface water. It would also spread over a wide area due to diffusion. The pit lake should be filled in with selected waste rock, chosen for its low potential for contributing dissolved solids to ground water and stockpiled separately for this purpose during mine construction and operation. There is still the potential for dissolution of chemicals in the crushed backfill material but the potential for high concentrations of introduced contaminants and safety would be prevented. The estimated cost of this remedial action should be presented in the DEIS rather than dismissed with subjective evaluations and conclusory statements that such measures are cost-prohibitive.

2.) Leach Pad Reclamation

2-63 The proposed plan for pad reclamation states that the solution used to rinse the pad will be run through the process columns to "remove residual metals." DEIS at 2-19. The process columns used at the mill are designed to remove gold and silver. Other metals such as chromium, arsenic, mercury, copper, lead, nickel, and zinc are also solubilized during the leaching process but are not efficiently removed by the adsorption process. These metals therefore are not removed by the process columns as the DEIS claims, but accumulate in the process circuit and the leached ore. The leach pad, over the years of its operation, becomes a reservoir for these heavy metals from which the metals can be extracted by precipitation. There is no discussion of how these metals will be contained nor what the environmental impacts would be should they escape into

2-61 Comment noted.

2-62 The added costs of pit backfill would increase the mining costs (dirt moving) by 58% and would be unfeasible operationally due to the uphill haul of material and the cutting off of the access to the upper pit if the lower pit is mined first. An exemption to leave open the pit at cessation of mining has been granted under Alta's reclamation permit with the Nevada Division of Environmental Protection.

2-63 Please refer to the response to comment 2-59.

surface or ground water.

The plan also states that the leach pad will be covered with a single layer of topsoil of unstated thickness. The local soils are extremely porous and subject to rapid erosion. DEIS at 3-19. The DEIS fails to disclose how a thin layer of these soils will prevent rain from percolating down to the spent ore, where it will then become contaminated by heavy metals. Since the process circuit will no longer be in operation, this contaminated water will overflow the pad liner and eventually enter surface and ground water. The only way to protect water resources on and off the site, once the pad is retired, is to cover the pad with an impermeable liner, which is then covered with vegetated topsoil. Throughout the projected 2-year reclamation process and for several years thereafter, the leach pad leak detection systems must be regularly monitored to verify that the water barrier is functioning properly.

As part of leach pad reclamation, the DEIS states that "[a]lternate water diversions would remain in place to divert water around the reclaimed leach pad." DEIS at 2-19. The DEIS does not disclose or explain how these diversions will be maintained in perpetuity after reclamation is complete.

3.) Soils

The proposed action will disturb 502 acres. DEIS at 4-13. The DEIS proposes to reclaim 402 acres using soil that has been salvaged and stockpiled. DEIS at 4-13,14. The DEIS admits, however, that soils in the area are of "poor suitability" for use in reclamation and that additional loss of soil structure and fertility will occur when the salvaged soil is stockpiled. *Id.*; DEIS at 3-1, 4-14. The amount of soil available for reclamation is also uncertain, as the DEIS estimates that as little as 269,200 cubic yards and as much as 1,182,900 cubic yards could be salvaged. DEIS at 4-

2-64

The amount of soil available for reclamation is based on estimates of topsoil depth for each soil type. These depths vary, and the estimate of 269,000 cubic yards of available topsoil assumes that topsoil depths would be minimal on the entire disturbed area. This would provide enough topsoil to cover 402 acres to a depth of about 5 inches. The estimate of 1,182,900 cubic yards assumes that topsoil depths would be maximized on the entire disturbed area. This would provide enough topsoil to cover 402 acres to a depth of about 22 inches. It is likely that the amount of topsoil available for reclamation would be somewhere between these two extremes; however, even if it at the minimal level it would be adequate.

Soils and climatic conditions—especially low rainfall—are always a challenge to successful reclamation. However, there is no reason to believe that vegetative cover would not be reestablished on reclaimed areas, since successful reclamation has occurred on similar habitats in the Great Basin. Vegetative diversity would eventually be similar to pre-disturbance diversity, but it would likely take up to 25 years for shrub cover to develop to pre-disturbance levels. Alta would be required to post a reclamation bond, and that bond would not be released until vegetation on reclaimed areas met criteria established by regulation. Revegetation test plots would be established on the mine site to determine successful revegetation methods, desired plant communities, and final bond release criteria (see Section 5.7 of this FEIS).

14.

The DEIS states that the "entire disturbed area, with the exception of the interior of the pits" will be "topsoiled [to a depth of 4-6 inches] and reseeded." DEIS at 2-19. The DEIS concludes that this reclamation technique will be successful despite the fact that soil quality is poor, erosion is likely, and there is gross uncertainty as to the actual amount of soil that can be salvaged. The DEIS should have evaluated and discussed whether the project will preserve sufficient topsoil and whether reseeding or revegetation would be successful, including an analysis of the past success of revegetation attempts in similar areas. The DEIS also does not explain whether the proposed reseeding mixture will restore vegetative diversity. The effectiveness of the proposed revegetation techniques must be evaluated and disclosed. This issue is acutely important, because the DEIS admits that "if reclamation is not successful, the action alternatives would have long-term adverse impacts." DEIS at 4-16

4.) Contingency Plans and Bond

There is no discussion of a contingency plan or financial bond should Alta suffer financial failure or, for some unforeseen reason, fail to complete the project and associated clean-up and reclamation. There must be the financial means and an appropriate and enforceable contingency plan for full remediation and reclamation of the site, as needed.

IV.) THE DEIS FAILS TO ACCOUNT FOR THE B.L.M.'S TRUST OBLIGATION TO THE TRIBES

The DEIS briefly discusses impacts to "Indian Trust Assets" (DEIS at 4-33), however, it fails to mention the BLM's trust obligations to "preserve and protect" Tribal interests when it

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All mining operations must be bonded at 100% of the cost for a third party contractor to reclaim the site. This bond must be in place prior to final approval of the plan of operation and startup of the mine.

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The BLM has complied fully with the duty to protect and maintain Indian Trust Assets. As a cooperating agency, the Pyramid Lake Paiute Tribe has been involved in the entire EIS process for this project. Alternative A was developed and selected as the preferred alternative in response to concerns by the Pyramid Lake Paiute Tribe of increased traffic through Wadsworth and past the school.

makes decisions that may affect those interests. See *Pyramid Lake Paiute Tribe of Indians v. United States Dep't of the Navy*, 898 F.2d 1410, 1420 (9th Cir. 1990); *Pyramid Lake Paiute Tribe of Indians v. Morton*, 354 F. Supp. 252, 256, *mod. on other grds.*, 360 F. Supp. 669 (D.D.C. 1973), *rev'd in part on other grds.*, 499 F.2d 1095 (D.C. Cir. 1974), *cert. denied*, 420 U.S. 962 (1975); *Northern Cheyenne Tribe v. Hodel*, 12 Indian L. Rep. 3065, 3070-71 (D. Mont., May 28, 1985), *remedy modified*, No. 82-116-BLG (D. Mont. Oct. 8, 1985), *modified remedy rev'd*, 851 F.2d 1152 (9th Cir. 1988).

The BLM's trust duty is separate from (but complements) its duties under NEPA and FLPMA, and is an enforceable fiduciary duty that exists despite the absence of express statutory trust language. *Northern Cheyenne Tribe v. Hodel*, 12 Indian L. Rep. at 3071, 3074. "The United States, acting through the Secretary of Interior, 'has charged itself with moral obligations of the highest responsibility and trust. Its conduct, as disclosed in the acts of those who represent it in dealings with the Indians, should therefore be judged by the most exacting fiduciary standards.'" *Pyramid Lake Paiute Tribe of Indians v. Morton*, 354 F. Supp. at 256 (quoting *Seminole Nation v. United States*, 316 U.S. 286, 297, 62 S. Ct. 1049, 1054 (1942); citing *Navajo Tribe of Indians v. United States*, 364 F.2d 320, 176 Ct. Cl. 502 (1966)).

The Ninth Circuit has interpreted the trust obligation "to extend to any federal government action." *Nance v. EPA*, 645 F.2d 701, 701, 711 (9th Cir.), *cert. denied*, 454 U.S. 1081, 102 S. Ct. 635 (1981) (cited in *Pyramid Lake Paiute Tribe of Indians v. United States Dep't of the Navy*, 898 F.2d at 1420). "[A] federal agency's trust obligation to a tribe extends to actions it takes off a reservation that uniquely impact tribal members or property on a reservation," *id.* at 701. At the very minimum, BLM must disclose these duties in the DEIS, and must discuss impacts from the

proposal in terms of these duties.

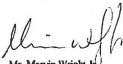
The BLM's trust obligation has also been recognized administratively, through the agency's "8160 Manual," which states, in part, that "[f]ederal agencies' official interactions with Native Americans, including consultation, are distinguished by unique legal relationships. Sovereign status of Indian tribes and special provisions of law set Native Americans apart from all other U.S. populations and define a special level of Federal agency responsibilities." H-8160-1 General Procedures for Native American Consultation (Nov. 3, 1994), p.I-1. Specifically, the Department of Interior has directed the BLM to "ensure that any anticipated effects on Indian trust resources are explicitly addressed in the planning decision and operational documents; i.e. . . . Environmental Impact Statements." Department of the Interior Order No.3175, (November 8, 1993). This responsibility includes the duty to "clearly state the rationale for the recommended decision" and to "explain how the decision will be consistent with the Department's trust responsibility." Id.; Department of the Interior Departmental Manual, 512 DM at 2.1 (December 1, 1995). The BLM has not disclosed this responsibility, nor has it discussed either factor in any detail.

The Tribe's reservation is approximately 5 miles and is downgradient from the proposed mining project area. Tribal members rely on many resources that are intimately connected to the project area. The BLM's failure to gather adequate data and disclose impacts to water quality and quantity, fisheries, wildlife, air quality, and cultural resources violates its trust obligation to protect the interest of the Tribe in making decisions on the use of public lands. The BLM has assessed the impacts of the proposed project using incomplete or missing information and has not even explained how implementation of the preferred alternative will be consistent with its trust

responsibilities. The scant and conclusory discussion of "trust assets" in the DEIS does not satisfy this obligation.

At best, the DEIS for the Olinghouse mine project represents a superficial attempt to characterize the impacts of the proposed project. The BLM has not taken the rigorous "hard look" that NEPA requires with respect to projects that may cause significant impacts. The procedures required by NEPA must be "faithfully followed" and "grudging pro forma compliance will not do." *Lathan v. Bringas*, 506 F.2d 677 (9th Cir. 1974). 40 C.F.R. § 1502.9 provides that "if a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft[.]" The BLM must withdraw the DEIS and defer its decision on this project until the "full and fair discussion of environmental impacts" required by NEPA is prepared and the BLM's trust obligations are fulfilled.

Sincerely,



Mr. Mervin Wright Jr.
Tribal Chairman

cc: Pyramid Lake Tribal Council
Mr. Robert Pelcyger
Mr. Ali Shahroody
Ms. Liz Mitchell
Pyramid Lake Water Resources
Pyramid Lake Fisheries
Pyramid Lake Environmental
File

LETTER 3. NORTHERN NEVADA BUILDING TRADES COUNCIL

BLM

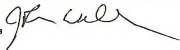
CARSON CITY, NV
Postmarked 11.14.97

Dear Ms. Knutson:

The Northern Nevada Building Trades Council (BCT) provides the following comments to the Bureau of Land Management (BLM) regarding the Draft Environmental Impact Statement for the proposed Ollinghouse Mine. The BCT also provides, as its own, the attached comments by Dr. Tom Myers and Ms. Wendy Kuntz regarding the DEIS. Please send copies of the FEIS and ROD both to the BCT, and to its researcher:

NORTHERN NEVADA BCT--ATTN: RICH HOUTS
1150 TERMINAL WAY
RENO NV 89502JOHN WILLIAMS
12770 SW FOOTHILL DR
PORTLAND ORE 97225

Please also send Mr. Williams a copy of the BLM document Ecological Risk Assessments Guidelines for Open Pit Mine Lakes in Nevada. (1996)

Yours, John Williams
cc: Rich Houts

THE DEIS FAILS TO PROVIDE SUFFICIENT DISCUSSION ON THE REASONABLY FORESEEABLE EXPANSION OF THE PROJECT

3-1

The DEIS on the Ollinghouse Mine only discusses the potential impacts from the mine's first phase, which is almost 500 acres of surface disturbance, including two adjacent, relatively shallow open pits that will be joined into one pit, a cyanide leach pad and ore processing and refining facilities, to be mined for five years.

But published articles state that in May, 1997 Alta Gold, the Mine owner, staked additional claims, increasing its land position by 60%, from 4300 to 6700 acres.

The DEIS, published in late September, 1997, about four months after Alta's announcement, still claims that only 4300 acres are within Alta's claim boundary. (p. i) In other words, the DEIS understates the total claim boundary for this mine by 2400 acres, or 60%.

The DEIS does grudgingly admit that the 465 acre mine studied in the DEIS is likely only a small portion of the total surface disturbance to take place at this site. In its "reasonably foreseeable development" section, (beginning on p. 4-37) the DEIS concedes that Alta has already identified sufficient and verified reserves, which will extend the mine's life from the 5 years of mining studied in the DEIS, to approximately 10 years.

The DEIS also states plainly "(V)erified reserves are now about twice the quantity on which the Plan of Operation (POO) is based." (4-39) But the DEIS does not explain why, if the amount of ore reserves has doubled, the DEIS does not analyze the impacts from a Mine that may operate approximately twice as long, and disturb a much larger area, than the mine proposed in the original Plan of Operation, that is instead studied in the DEIS.

Simply put, the DEIS' analyzes a "5 year mine," when the DEIS admits it is likely at least a "10 year mine."

Studying only 5 years of operation by the Ollinghouse mine is a classic "piecemeal" approach, since the acknowledged life of

Although Alta has added more property and mining claims to their holdings in the area, the plan of operations project area remains the same. Additional exploration drilling has identified more reserves; however, those reserves are in the same disturbance area and would be mined in the same timeframes. Reserves identified depend greatly on gold prices and feasibility of extraction.

the Mine will be at least 10 years, and possibly more (4-39). BLM's own NEPA rules emphasize that the agency must "Provide a complete description of the proposed action." (BLM H-1790-1, p.V-17.) But this DEIS provides a description of only one-half the proposed action, since it contemplates mining only about one-half of the ore that is currently known to exist at the Ollinghouse site.

3-1

The DEIS seeks to "cure" this plain deficiency by a terse discussion of the "cumulative" impacts caused, in part by the 10 years of mine operation (beginning on p. 4-39). This short discussion is plainly inadequate. The likely life of the mine is clearly known to be longer than 5 years. The brief, one and two paragraph discussions in the "cumulative impacts" sections on air and water quality, and other areas of significant impacts caused by a 10 year mine life, are not a legally adequate substitution, under NEPA, for a detailed discussion within the text of the DEIS, of the impacts from five years of mine life.

The DEIS' incomplete treatment of this mine's expected impacts are evidenced in part by the thinness of the document; which is just over 100 pages. A more comprehensive document of greater length, in the 200-300 page range of many other EISes prepared by Nevada BLM, would more completely discuss the impacts from the ten years of mine life that are expected at Ollinghouse.

3-2

Certainly a draft EIS of a complex mine project near a major urban center, which will affect groundwater resources from which public drinking water is drawn, and which will emit tons of toxic air pollutants, and which will involve the transport, use and disposal of millions of pounds of toxic and hazardous materials, and which will leave behind a pit lake containing tainted water, should provide a more complete discussion of the reasonably expected impacts from the likely 10 year mine life of this operation.

Since NEPA rules allow even a Final EIS to be 300 pages in length, a 200+ page DEIS should have been prepared to provide a more detailed analysis of this proposal's likely 10 year life, rather than producing this thin text with only a cursory description of the likely impacts from the extended operation of the proposed facility.

3-2

The thinness of the document by no means diminishes the comprehensiveness of the analysis. The CEQ Regulations specifically detail the need to reduce excess paperwork in environmental documents (40 CFR 1500.4 (a)-(q)).

PIECEMEAL APPROACH UNDERESTIMATES IMPACTS FROM THE PIT LAKE

The current "piecemeal" approach to the Mine's impacts, means that when the DEIS studies the "five year mine" impacts on groundwater, the review is limited to impacts from open pits that penetrate only 90 feet below the groundwater table.

- 3-3 Were the DEIS to perform a more honest assessment of a 10 year mine life, it would consider the likelihood that the open pits will penetrate much more than 90 feet below the groundwater table, and would affect a larger geographic area, and cause a more widespread and deeper adverse impact of far greater significance than what was studied in the "5 year mine" EIS.

- 3-4 This is an especially serious topic, since the DEIS concedes that pit waters will flow offsite through the subsurface, potentially degrading down gradient groundwater.

- 3-5 These additional impacts are conceded, but not analyzed in the DEIS, which admits that recoverable gold is identified at the outer margins and lower depths of the proposed pits, and that dewatering may be required. (P. 4-37 to 40) This information indicates that the likely expansions of the mine will cause increased surface disturbance and deepening of the pits. But the DEIS fails to analyze these foreseeable expansions.

AIR QUALITY

The ore processing facilities at the Mine, including the retort/smelter, will produce thousands of pounds of toxic and hazardous air pollutants. But the DEIS' discussion of air quality impacts barely fills two pages, including a chart. This discussion inadequately informs reviewers of the significant and adverse air quality impacts from this project.

- 3-6 For instance, the Mine's ore processing facilities will include a smelter/retort, which heats, evaporates and drives mercury out of the concentrated gold ore. These mercury vapors and mercury particulates are discharged to the air. Inhaled mercury is highly toxic to humans, and to animal and plant life.

These mercury fumes and particulates fall to the ground, contaminating plants and soils, and falling directly into surface waters. Rainfall will eventually wash some of the deposited mercury from soil surfaces, into surface and ground waters.

- 3-3 Future expansions would require additional analysis and NEPA documentation. The plan of operation for the Olinghouse Mine Project is for a mining operation that is economically feasible for Alta to mine at the current gold prices and for the current costs. Please refer to the response to comment 3-1.

- 3-4 The DEIS at 4-10 states "groundwater quality would not be degraded by the pit lake (SMI 1997)." Also, please see Appendix I, page 10 of the SMI Baseline Report.

- 3-5 Please refer to responses to comments 3-1 and 3-3.

- 3-6 Please refer to the response to comment 1-27.

3-7 Please refer to the response to comment 1-27.

The BCT was unable to find even one mention in the DEIS that the Mine's smelter will produce airborne mercury emissions, nor does the DEIS discuss the potential adverse air and water quality impacts from the mine's discharges of mercury.

3-6

The on-site smelter will emit highly significant amounts of mercury; about one ton of airborne mercury per year of operation, according to the Mine's air permit. This translates to approximately about 5 tons of mercury discharged from the retort, over the first 5 years of mining. It is likely that a significant portion of this 5 tons of mercury will condense and fall to the ground on and near the project site, contaminating soils and plants, and that rainfall will carry a fraction of the mercury into the groundwater and surface waters.¹

The DEIS did not discuss the deposited mercury's impacts to soil, air and water quality, and to plant and animal life that may consume mercury, either on or near the project site.

MERCURY DEPOSITION INTO SURFACE WATER

This is an important omission because of the high toxicity of mercury. For example, a gram of mercury will contaminate about 83 million liters (22 million gallons) of water to levels that violate acute aquatic life standards, and drinking water quality limits.

3-7

The retort may emit about 4.95 million grams of mercury into the air over the project area over 5 years of operation. Some of this mercury will fall onto the ground, and rain and snowmelt will wash it into surface waters. If only one thousandth of this mercury (4950 grams) reaches surface waters, billions of gallons of water would be degraded below drinking water and aquatic life standards. If only two of those millions of grams of airborne mercury fall into the open pits, and eventually become entrained in the pit lake water, that would contaminate the pit lake in violation of fresh water chronic standards for mercury.

¹The retort's total Hazardous Air Pollutants (HAP) are .99 tons/year. All of the HAPs from this source are mercury. (personal communication, Charlotte Albee, Washoe County, September, 1997)

There have been many studies of how airborne mercury emissions from point sources have caused elevated mercury contamination levels in nearby plants, animals, and surface soils, which in turn have caused and contributed to elevated mercury levels in surface water bodies that drain the contaminated areas.² These studies were never discussed in the DEIS, even though the Mine's retort/smelter is a measurable source of airborne mercury, with airborne annual mercury emissions that are over 400% greater than a large coal-fired power plant.

3-8 Please refer to the response to comment 1-27.

3-9 Please see the response to comment 1-26. Normal dust suppression measures would be taken at the mine. Based on the whole rock analyses conducted in the SMI Baseline study (page 2, Appendix G), the dust generated would not be significantly enriched with metals as compared to unmineralized rocks of similar lithology at the site.

3-8 The Mine's smelter has many features that will contribute to excessive levels of mercury deposition onto the area's soils, with resulting impacts on surface and groundwater. These aggravating factors include the possibility of mercury emissions which include the vapor form of mercury, the location of the smelter in and among elevated terrain, and the relatively low stack height and the low exhaust temperatures from the smelter. These kinds of factors are considered to contribute to mercury contamination of surface soils near airborne mercury sources, but these factors, and their potential mitigation, were never discussed in the DEIS.

Since airborne Mercury emissions are a direct impact from this project, NEPA requires that the potential impacts from mercury deposition should have been studied in the DEIS, and this plainly significant and adverse impact from airborne mercury emissions should not have been neglected in that document.

MINERALIZATION OF DUST EMISSIONS

3-9 There will be other sources of airborne mercury and other highly toxic metals from the Mine, in addition to the retort/smelter. The crusher and ore and waste rock handling processes, windblown dust from rock and ore storage piles, and

² Dvonch, 1994. Cited in US EPA. Draft Study of Hazardous Air Pollutant Emissions. June, 1995. Docket No. A-92-55, Item No 1-A-1. See also: EPA. Mercury Study Report to Congress. Appendix A. (1995), Anderson and Smith (1977), FR V. 61 #16, p. 1/24/96, p. 1932. Even after a 60% emissions reduction, airborne sources contribute ton/year of mercury into nearby water bodies.

3-9 ↓
 dust from unpaved roads will all emit a total of hundreds of tons per year of fine dust to the air. Since a mine site by definition is highly mineralized, the dust will also contain metals, including but not limited to mercury, copper, lead, zinc and other elements that are highly toxic as fine, airborne dust, when inhaled.

At least one of the rock samples at the Mine, submitted to the NDEP, contained elevated levels of mercury. This indicates there will be measurable amounts of mercury, and other metals, in the mine's dust. This will contribute to the levels of mercury deposited at this site from the Mine's smelter.

This mine's dust from operations will also "fall out" onto the ground, and onto plants, raising the metals levels of plants and soils nearby. Rainfall will mobilize these elements, including but not limited to mercury, and wash some of them into the surface and ground waters.³

The DEIS failed to discuss at all the mine's fine dust emissions from cleared and disturbed areas at the site, including parking lots, its unpaved roads, and ore and waste rock piles. These emissions are known as "fugitive dust" from "non-point sources." Nor did the DEIS discuss the amounts of diesel exhaust emissions from the Mine's heavy equipment, even though the EPA has identified diesel fumes as a potentially toxic air pollutant.

3-10 ↓
 This omission is caused by the DEIS' failure to independently study all of the mine's air quality impacts. Instead the DEIS' air quality impacts section relied on information from the local air board's permit for the mine.

But the local air quality agency's rules currently does not require predictions of the potential amounts and impacts of fugitive dust from non-point sources, or impacts from mobile sources such as haul trucks, nor has it mandated emissions limits to reduce the impacts from fugitive dust sources at

³The DEIS claims that in the event of a large-scale release of process waters, that heavy metals would likely be bound in the soils by iron and carbonates. But the DEIS provide no citation of an authority to justify this conclusion (4-9).

Please refer to the response to comment 1-27.

There would be no "large-scale" release of process waters because the event pond has been increased in size to accommodate a 24-hour 100-year event (please refer to the response to comment 1-1).

Fugitive dust is discussed in the DEIS, as is Alta's commitment to dust suppression (DEIS at 2-8, 2-13, 2-28, and 4-4). BLM believes that dust suppression described in the document would control fugitive dust. Diesel exhausts from heavy equipment and other mobile sources were not modeled, as such modeling is not required by Washoe County or the State of Nevada, who have primacy for air quality in Nevada.

Ollinghouse, even though fugitive dust at other mines have produced significant impacts. The local agencies do not regulate hazardous air pollutants contained in fugitive dust, either, or emissions of cyanide and mercury from point sources which emit below 2000 lbs/year of a single toxic air pollutant. The Ollinghouse smelter is predicted to emit 1980 lb/year of mercury.

The DEIS, by limiting its own air pollution analysis to a description of some of the local permit's conditions, dealt only with the "criteria" air pollutants from the "point sources." The DEIS mentioned only that fugitive dust would be controllable, and ignored airborne emissions of toxic pollutants such as metals and cyanide, which had not been discussed in the county air permit.

The DEIS has a duty to discuss the variety of air quality impacts that will be caused by the Mine, especially if those impacts were not regulated by the county air permit. A DEIS is supposed to analyze and describe the impacts on the human environment of the proposed action, and the different factors of air pollution, including the emissions of both criteria and toxic air pollutants, from both point and fugitive sources, are certainly project-related direct impacts. (BLM Handbook H-1790-1, p. V-20, 10/25/88.)

The DEIS should have discussed the quantity and expected concentration of air pollutants, primarily fine dust (PM-10) that will be produced from the combination of point and fugitive sources at the Mine, in combination with the existing levels of pollution from offsite sources. This is especially important since there is some evidence that PM-10 is already at illegally elevated areas in the Mine's airshed. It is also important because California Air Resources Board studies have found that cadmium and arsenic levels in windblown dust, from cleared areas at mines and other sources, are health risks.

ROAD DUST MITIGATION NOT DISCUSSED--PAVING SUGGESTED BY RCT

The DEIS provides but a single project alternative; a realignment of the access road, to run south rather than west, and avoid the nearby Paiute reservation, with its houses and a school.

But this road will be unpaved. This will cause a significant impact, the generation of hundreds of tons per year of

3-11 The DEIS discusses the quantity of PM₁₀ produced by the mine in the DEIS at 2-22, and 4-3.

The project area is presently in compliance with PM₁₀ standards.

3-12 The DEIS at 4-4 states that fugitive dust would be generated, but would be controllable by the application of water and/or chemical dust suppressants. Alta commits to dust suppression in the DEIS at 2-13. BLM believes these measures adequate to suppress fugitive dust.

mineralized dust. NEPA requires the discussion, in an DEIS, of mitigation measures to reduce impacts. This DEIS fails to discuss dust mitigation measures, including but not limited to paving, regarding this road.

The BCT objects to the DEIS' failure to require paving of this (and other mine) roads as a particulate control method. The large amount of traffic from workers' vehicles, vendors, deliveries, and trafficking of mine ore, waste rock and byproducts, will produce significant road dust impacts.

Paving mine roads also reduces wear and tear on vehicles and is cost-effective. The Kennecott Utah tailings expansion EIS recently studied and approved the paving of a main haul road as a particulate control measure at that facility, concluding it would reduce air quality impacts and would also save money for the mine, by reducing the impact on equipment and by allowing more efficient movement of trucks.

Road dust is often one of the major sources of air pollution at mines. The proposed mine may emit hundreds of tons of particulate and fine particulate (PM 10) annually from fugitive sources, and it is likely that a large portion of these emissions are from road dust. In other words, consideration of mitigation measures to reduce road dust is an important function of an environmental review such as an EIS. Paving mine roads is an efficient and cost-effective methods of reducing road dust.

For these reasons, since Kennecott has set a precedent for metal mines in the West, the BCT urges that paving, especially of the main access roads, including the alternative "A" road route, should be mandated in the EIS and ROD. Many mines and industrial facilities, and governments, have acknowledged, and adopted road paving as a method of dust control.⁴

⁴EPA's AP-42 at 11.2.1.3 (9/88) states that common (dust) control techniques for unpaved roads includes paving. See also Federal Register V. 61 No. 57, 3/22/96, p. 11867; Lone Star Industries is to spend \$150,000 to pave in-plant roads at its Missouri facility to control fugitive dust emissions. See FR V. 61 No. 214, 11/4/96, p. 56679; BACT requirements for particulate emissions included paving for Mid-American Waste Systems (NSR 4-

Mines have claimed in the past that road paving would cause wear and tear on its equipment tires, which it claims are designed for operation on unpaved surfaces. The BCT has reviewed studies of mine vehicles tires that demonstrate that certain types of paved roads cause less tire wear than do unpaved roads, especially mine roads, which are often surfaced with rough rock.

The BCT has reviewed Figure 12-117, from a heavy equipment handbook. This chart compares the factors of tire wear on heavy equipment on different types of road surfaces. This higher the factor number the longer the tires last. A blacktop paved road has a factor of 1.2 to 1.4, depending on weather, meaning on average, tires traveling on this type of road surface will last from 7200 to 8400 hours.

In contrast, tires on heavy equipment traveling on roads surfaced with blasted rock of limestone and granite, or schist, have a life of about 2400 to 4200 hours (factor of .4 to .7), and a gravel surface ranges from .7 to .9, depending on maintenance (4200 to 5400 hours per tire life). This source material also notes also that a 10 mile per hour speed limit increases tire life by 40%, compared to 30 MPH.

The BCT's representatives have traveled on many unpaved mine roads. These roads are usually bumpy and potholed. These irregular road surfaces decrease tire life and damages mine hauling equipment. The BCT suggests the DEIS is deficient for not studying an alternative of a paved access road, and a 10 MPH speed limit as a dust control and safety measure, which will save the mine money by reducing tire and equipment wear.

This is an important deficiency in the DEIS, because the "alternative" road route runs near a housing development. The proximity of these houses to the alternative road was not mentioned in the DEIS. But road dust and mine traffic will have

4-10, SD 92-02), EPA Region 9. See also FR V. 59, No. 46, 3/9/94, p. 11014, Pagosa County (CO) achieved attainment of the PM-10 NAAQS by paving 6 miles of unpaved gravel roads.

Nichols, Herbert. Moving the Earth. Second Edition. P. 12-123.

3-12 an impact on people living near the road. Dust mitigation measures such as road paving, and a 10 mph speed limit, should have been discussed to protect the safety and health of the residents living near the alternative road route.

POOR AIR QUALITY ALREADY IN THE MINE'S VICINITY

3-13 The Mine is located in the "Truckee Meadows" air basin which is designated as 'non-attainment' for PM-10, or fine dust. ' This means that the Mine will contribute to existing violations of air quality standards. This aspect of the Mine's impacts was neglected in the DEIS, even though the mine will potentially contribute to violations of federal and state air quality standards.

CYANIDE

3-14 The mine will also spray liquid cyanide onto heaps of ore, to leach out the gold for recovery. This process at the leach pad will also produce emissions of airborne cyanide, because a fraction of the cyanide "drifts," or in other words it evaporates and is windblown off of the leach pad.

Again, the DEIS completely neglects to discuss the impact from airborne cyanide emitted from the leach pad. Again, because of the highly toxic nature of cyanide, the DEIS is inadequate because of this failure to discuss airborne cyanide emissions, which may have a significant adverse impact on nearby humans, plants, animals, soils, and surface and ground water.

The BCT and other groups have criticized other DEISes on the impacts of Nevada Mines, for failing to study the potential air quality impacts. The EISes has defended this failure by claiming that other agencies regulate air quality, that an EIS cannot enact air quality rules, and that some toxic air pollutants do not have standards in the state of Nevada.

The BCT objects to these efforts to evade NEPA's mandate to study impacts from projects. No one is asking an EIS to set up air quality rules, or take over other agencies' responsibilities. But NEPA requires an analysis of direct and indirect project impacts, and this includes all of the air pollution impacts from

3-13 The proposed project area is not in a non-attainment area for PM₁₀; rather, it is in attainment for all criteria pollutants except ozone (DEIS at 3-7).

3-14 Drip emitters would be used to apply the cyanide solution to the heap. Please refer to the response to comment 1-6 and Section 5.2 of this FEIS.

¹Draft EIR/S for the Tuscarora Pipeline, p. C.2-3.

3-15a Please refer to the response to comment 3-4.

mines, from both toxic and conventional pollutants, from both point and fugitive sources, including toxic pollutants for which there are no current standards, but which are recognized as dangerous, including but not limited to silica.

It is true that several toxic air pollutants, such as mercury, silica, cyanide and many metals, do not yet have standards enacted in Nevada. This lack of current standards is a reflection on the work load of the air quality regulatory agencies, not on the harmlessness of toxic air pollutants. However, there are many other well known avenues to study the significance of a mine's air quality impacts for pollutants that currently lack air quality standards.

These alternative methods should have been employed in the DEIS, to study the potential human and animal health impacts from the toxic air pollutants emitted at the Mine.⁷

The BCT contends that NEPA requires that a DEIS should analyze the air quality impacts from the variety of pollutants emitted by the large scale surface disturbance, and operation of heavy industrial vehicles, processes, and equipment, connected with this mine.

INADEQUATE ENVIRONMENTAL RISK ASSESSMENT OF THE THREAT FROM THE REMAINING PIT LAKES

The Mine, after closure, will leave behind open pits that will fill with groundwater of degraded quality. This contaminated water may not comply with Nevada State law and presents a threat to wildlife.

⁷One accepted methods is to divide the worksite recommended exposure levels (such as NIOSH, OSHA or MSHA standards) for a pollutant by 420. A DEIS could also employ the Ambient Air Level Goals cited in Air Toxics and Risk Assessment. EJ Calabrese and EM Kemyon. Lewis Publishers, 1991. A DEIS could also compare estimated airborne concentrations of toxins and metals, with the Inhalation Unit Risk Estimates (IUREs) derived from EPA's Integrated Risk Information System (IRIS). The California State EPA also has calculated IUREs for many toxic air pollutants including metals.

3-15a The DEIS addresses these impacts through its summary of an "Screening Level Risk Assessment" (SLRA) which the DEIS purports to hold harmless the pit lakes, claiming that the SLRA concludes "Using worst-case assumptions, no risks were found (to wildlife from the pit lake waters)." (P. 4-18)

3-15b The BCT demurs with the DEIS' claim of no risk from the pit lake. In fact, the SLRA did find that several metals would accumulate in the pit lake in exceedance of water quality standards; Barium, lithium, strontium, and molybdenum, and that bioaccumulation of mercury was also a risk. (SLRA, table 2-2) Violations of water quality standards, by itself, is a risk and a violation of state and federal regulations.

3-15c The SLRA also found that risks from mercury to the bald eagle exceeded a "Hazard Quotient" of 1, meaning there is a potential for adverse impacts.

An SLRA can draw only one of two conclusions; (1) There is adequate information to determine there is little or no risk of adverse ecological effects, or (2) There is not adequate information to make a decision and the process will have to continue to the next step. (SLRA, p. 3)

The BCT contends that the SLRA's finding that water quality standards will be exceeded in the pit lake, and the Hazard Quotient for the bald eagle exceeded "1," demonstrate, by themselves, there is inadequate information to conclude there are no adverse ecological effects, as the DEIS claims.

3-15d Furthermore, the BCT also argues that the SLRA contains additional data indicating there will be adverse impacts from the pit lake, that the SLRA did not study the adverse impacts of several metals and toxins that will be present in the pit lake at levels found to cause adverse effects, and/or to violate water quality standards, and the SLRA failed to consider airborne pathways for contaminants to enter the pit lake, thus underestimating the pit lakes' toxicity.

The implications of these contentions, is that the DEIS, by its reliance on an 'optimistic' SLRA, failed to adequately study the pit lake's impact, failed to inform its reviewers of those impacts from the pit lake, and failed to recognize that the pit

3-15b Pit lake modeling demonstrates that accumulation of metals would not occur, but the concentrations of metals in the pit lake would approach levels that currently exist in groundwater (SMI Baseline Report, Appendix I). Predicted concentrations of molybdenum in excess of Nevada's chronic aquatic life standard is within the limit of uncertainty for chemical analysis. Only observed concentrations of compounds in excess of enforceable standards constitute a violation of the Clean Water Act. In addition, barium, lithium, and strontium are not governed by federal or state regulations. The standards shown for these elements in the SMI Baseline Report (Appendix J, Table 2-2) are footnoted and are not enforceable. All of these compounds were carried forward and evaluated for site-specific risk.

3-15c The SLRA acknowledged that an HQ greater than 1.0 had been estimated for eagles potentially obtaining all of their food and water from the pit lake. The next step in a risk assessment would be to refine the exposure parameters used to estimate the potential for adverse impacts and provide a weight-of-evidence discussion. The potential for impacts was evaluated in accordance with this standard procedure by noting that the likelihood of an eagle obtaining 100% of its food and water from the pit lake was not reasonable and the actual potential for an adverse impact would be well below 1.0. Eagles have a large home range, and use of the project area by a bald eagle would be limited to the winter months. McClelland et al. (1994) found that radio-collared adult eagles wintering in Nevada exhibited region-specific home ranges of up to 660 square miles. Pit lake use during the winter months would not be likely to exceed 5% for a pit lake with minimal aquatic community development, and 75%, when a full littoral community is present (personal communication, 1997, with Rory Lamp [Elko], Gary Herron [Reno], and John King [Reno], Nevada Division of Wildlife).

In addition, page 26 of Appendix J of the SMI Baseline Report describes the conservative nature of the initial input of mercury concentrations for modeling of predicted concentrations. Given these factors (assumption of 100% food and water ingestion and use of the detection limit from column leachate tests as input to the modeling) the SLRA conclusions are valid and it is not necessary to carry the risk assessment further.

3-15d Please refer to the responses to comments 3-7, 3-9, 3-15a, and 3-15b.

3-15d

lake is a significant adverse impact that is not mitigated by reasonable means and project design alternatives, such as filling the pit, at least to the groundwater level.

3-16

Please refer to the response to comments 3-15c and 3-15d.

ERA'S METHODOLOGY FAILED TO CONSIDER ADVERSE IMPACTS FROM SEVERAL TOXINS AND METALS PRESENT IN THE PIT LAKE

The pit lake will contain elevated levels of several metals and toxins. But the SLRA only studied the pathway of metals and toxins leaching into the pit lake from the pit sidewalls, and from groundwater entering the pit at pre-mining water quality levels, even though metals and toxins will have other pathways to reach the pit, including the airborne pathway, which is dealt with at greater length below. The BCT also believes that after five or more years of mining, it is likely that the groundwater under the site may contain elevated levels of toxins, that have leached into the groundwater from meteoric leaching of waste rock piles, fugitive dust deposition, and other mine-related sources.

The SLRA began by estimating the potential concentrations of metals and toxins in the pit lake, considering only the contaminants contributed from leaching from the pit wall and from untainted groundwater inflow. Then the SLRA compared those contaminant levels with water quality standards; using contaminant levels at a time when the pit lake is one year old.

If a metal or toxin exceeded the standard, or had "bioaccumulative" potential, meaning it could concentrate in the food chain, then that contaminant "made the cut," and was considered further for its potential impact on the wildlife and avian species that would frequent the pit lake.

The SLRA then presented a list of wildlife that will frequent the pit lake, including but not limited to the bald eagle, and calculated whether a few of the pit lake contaminants would accumulate in those wildlife species at levels exceeding a "hazard quotient" (HQ) of 1. The HQ for the eagle did exceed one; it was 1.9.

The SLRA had stated that an HQ exceeding one "may indicate the need for further refinement of the estimation of risk. (SLRA, p. 3)

But now the SLRA claimed it had overestimated the

3-16

contaminant factors, and would not study the impacts to the eagle further, despite its own guidance for HQs exceeding 1. The SLRA then cleared the pit lake of any potential to cause adverse impacts.

DEIS (AND THE RELATED ERA) FAILED TO CONSIDER AIRBORNE PATHWAYS OF CONTAMINATION FOR THE PIT LAKE

The BCT contends that first of all, the ERA is flawed by failing to consider that the approximately 10,000 pounds of the Mine's airborne mercury emissions (and other airborne metals and toxins) will be deposited on the mine site, and that some of this mercury (and other airborne pollutants) will be washed into the open pits, and directly deposited in the pit as fallout from the emissions plume from the mine's smelter.

The DEIS plainly states that the prevailing wind at the mine site is from south to north. (P. 3-6) The retort/smelter is in the mine process area, about one mile upwind (south), and below the open pit(s). These factors indicate that at least some of the retort/smelter's emissions will deposit in and near the open pit.

3-17

Instead the ERA considered only the impacts from metals leaching into the pit water from the exposed rock in the pit walls. The SLRA's omission of the contribution of the Mine's airborne deposition of mercury (and other toxins) to pit lake water quality is a significant failure to assess a clear impact, since other sources have found that airborne metals have measurable impacts on soil surfaces and water quality.'

After all, the mine's retort/smelter (and processing area) is upwind and downhill of the pits. It will emit over 4 million grams of mercury into the air, into a wind blowing towards the pit. Some of that mercury will fall into the pit area. After mine closure, the pit will contain about 30 million gallons (110 million liters) of water.'

'Page, Chang, El-Anamy, Lead, Mercury, Cadmium, and Arsenic in the Environment. (SCOPE 31) Scientific Committee on Problems of the Environment. Wiley & Sons. 1987.

'The pit lake will have a 3.4 acre surface, times 90 feet deep, times .33 = 102 acre feet, or about 30 million gallons, or

Please refer to the responses to comments 3-7 and 3-9. Most deposition of dust to the proposed pit would occur during mining activities. As the proposed pit is expanded during operations, previously deposited dust would be mined away and either leached with the ore or placed on the waste rock dump. At most a few weeks of dust could be deposited within the pit after mining operations have ceased and before final shutdown.

3-17 If only two grams of airborne mercury falls into the open pit area, and that mercury, after mine closure, eventually becomes entrained in the pit lake water, that would contaminate the pit lake in violation of aquatic fresh water chronic standards for mercury. This failure to consider the contribution of airborne mercury into the pits, means the SLRA underestimated the likely levels of mercury to occur in the pit lake.

This same airborne pathway for mineralized dust and diesel fumes from the mine's processing areas, to the open pit area, hold true, but was not considered in the DEIS.

INACCURATE PERCENTAGE FOR METHYLMERCURY IN THE PIT LAKE

Mercury's most toxic form is Methylmercury. Mercury is converted into this form by natural biological and chemical processes, including conversion by bacteria, and when mercury is bioaccumulated, it is in the methylmercury form. But the SLRA claims that only 25% of the mercury in the pit lake will be methylmercury.

Despite the SLRA's contentions, this is not a conservative assumption. The US Fish & Wildlife argues that:

3-18 "All mercury discharged into (surface waters) ... can be converted into methylmercury compounds by natural processes." (Mercury Hazards to Fish, Wildlife, and Invertebrates. (1987))

In other words, the SLRA may have greatly underestimated the impacts of Methylmercury in the pit lake, but not allowing for the likely, complete conversion of mercury into Methylmercury. If the SLRA were to recalculate the wildlife risks from the pit lake from this likely increased value for Methylmercury, the hazard quotient for the bald eagle would likely approach or exceed a rating of "10," (from its current 1.9) which even the SLRA admits would trigger further study.

THE SLRA FAILED TO CONSIDER THE IMPACTS FROM THE OBSERVED EFFECT LEVELS, WHEN CONSIDERING WHICH POLLUTANTS TO STUDY FURTHER

3-19a The SLRA, as stated above, only considered for further

120 million gallons, or about 110 million liters.

3-18 The amount of mercury that is converted into methyl mercury compounds is dependent on several factors, including microbial activity, nutrient content, and pH. In wetlands and streams, no consistent relationship has been observed between total and methyl mercury, and more than 90% of total mercury can be methyl mercury (Kelly et al. 1995). However, a linear relationship between total and methyl mercury has been observed in lakes. The percentage of total mercury that exists as methyl mercury varies from lake to lake, but typical values have been observed to range from 1% to 20% of total mercury in oligotrophic lakes (Meuleman et al. 1995; Driscoll et al. 1995), and from approximately 9% to 20% in eutrophic lakes (Kelly et al. 1995). Gilmour and Henry (1991) provide an excellent review of mercury methylation in aquatic systems, noting that the percent of methyl mercury in aerobic surface waters of lakes and rivers ranges up to approximately 25%. Thus, the assumption that 25% of total mercury would be in the methyl mercury form in the proposed pit lake at the Olinghouse site is reasonable and conservative.

3-19a This comment is incorrect. The selection of pollutants for inclusion in the study included constituents thought to be significant bioaccumulators as identified by EPA (1995).

study, the effects of pollutants that it modeled would exceed state water quality standards when the pit lake was one year old. 3-19b

3-19a ↓ This is a flawed approach, that will understate the potential harm, because many of the pollutants that will occur in the pit lake are harmful to wildlife and their prey at concentrations below the water quality standards. These levels of observed effects often occur at below the concentration of the water quality standards. The California ARB, considers, for instance, that toxics such as arsenic and cadmium have no threshold below which there is no effect.

The BCT contends that the SLRA should have compared the expected levels of the different pollutants in the pit lake, with the 'observed effect' levels of these pollutants, before determining what pollutants' impacts to study further.

SLRA WAS FLAWED BY ITS CONSIDERATION ONLY OF POLLUTANT LEVELS IN THE ONE-YEAR PIT LAKE

3-19b ↓ The SLRA also compared the expected concentrations of pollutants in the pit lake after one year with the water quality standards, even though some pollutants will have higher concentrations in the pit lake after more than one year. ¹⁸ As mentioned below, selenium's concentrations will increase after more than one year, and will exceed water quality standards. But selenium's effects were not studied further.

The combination of selecting for further study only those pollutants violating water standards, and only after one year, further skewed the SLRA to underestimate the potential adverse impacts of the pit lake.

¹⁸The concentrations of Arsenic, Boron, Barium, * Cadmium, Cyanide, Chromium, Manganese, Magnesium, Molybdenum, * Nickel, Gallium, Lithium, * Selenium, Strontium, * TDS, Titanium, Vanadium, and Zinc will increase in the pit lake, after one year. His means that the SLRA's consideration only of these concentrations at one year in the pit lake underestimates the impacts.

*Pit lake concentrations will exceed water quality standards.

The comment correctly points out that some of the chemical concentrations may not be at the maximum predicted level at 1 year. Some of the concentrations may increase slightly; however, use of maximum concentration does not alter the selected chemicals of potential concern (COPCs). The comment incorrectly states that selenium concentrations would increase to levels that exceed the Nevada aquatic life standard. The maximum predicted concentration is 0.0048 mg/L, which would not exceed the Nevada aquatic standard of 0.005 mg/L.

THE SLRA FAILED TO CONSIDER ALL SOURCES OF DATA ON BIOACCUMULATION.

The SLRA considered only one of the thirty-four pollutants (Methyl mercury) that will occur i.. the pit lake to be "bioaccumulative," meaning it will accumulate, and its concentrations will magnify, higher up in the food chain.

But many reputable scientific and agency resources consider several others of those 34 pollutants to be highly bioaccumulative. For instance, the EPA's Water Related Environmental Fate of 129 Priority Pollutants (EPA-440/4-79-029a, Hereinafter FATE) presented the following bioconcentration and bioaccumulation factors for some of the toxins to be present in the pit lake:

TOXIN	PLANTS	INVERTEBRATES	FISH
ARSENIC	333	333	333
CADMIUM	1000	4000	3000
CHROMIUM	4000	2000	200
LEAD	200	200	60
NICKEL	100	100	40
SELENIUM	800	400	1000

FATE also provides narrative indicating that a number of studies have shown that Arsenic is bioaccumulated, that Cadmium is strongly bioaccumulated by all organisms at concentrations hundreds to thousands time higher than in the water column (Eisler et al, 1962) , that passage of Chromium through the food chain has been demonstrated, because it is a nutrient and it is accumulated to levels much higher than in ambient water, that Copper is strongly bioaccumulative, that bioaccumulation of Lead has been demonstrated, that Nickel is of medium bioaccumulation, Coleman and Cearley (1974) demonstrated bioaccumulation of silver, thallium is quickly bioaccumulated, and that Zinc is very bioaccumulative because it is a nutrient.

This collection of flaws in the SLRA (not considering all bioaccumulation evidence, not considering observed effect levels, and not considering expected toxin concentrations in other than the first year of the pit lake) has damaged the SLRA's study, and the DEIS that relies on it. These results of these flaws are illustrated by closely examining the following toxins that will

3-19c The comment is correct in stating that chemicals with the potential to bioaccumulate through the food chain should be retained for analysis. In order to determine which of the 34 chemicals have the potential to significantly impact the food chain, when present in concentrations exceeding the water quality criteria, information presented in the recent EPA Great Lakes Initiative study (EPA 1995) was used. The study provides a list of chemicals that EPA has determined to have a high bioaccumulative potential, as well as those that are not significant bioaccumulators. The EPA Great Lakes list of bioaccumulative pollutants consists of those chemicals with a bioaccumulation factor (BAF) greater than 1,000 and a high propensity for biomagnification. EPA does note, however, that pollutants that do not biomagnify may still be chemicals of potential concern if they have high (>1,000) BAFs because they can accumulate to high levels in lower level organisms.

A wide range of BAFs can be found in the literature. The EPA (1995) reviewed current literature and identified those chemicals that were of initial interest because of their bioaccumulation and biomagnification potential. An example of the wide range of BAFs in the literature can be seen with regard to the BAF for fish (1,000) from the 1979 EPA FATE document (from reviewer's comment; reference unknown). In contrast EPA (1988) identifies a BAF for selenium for freshwater fish of 30.5. Because of the wide variation of BAF in the literature, EPA's Great Lakes list is an appropriate method to initially screen chemicals based on the potential for effects.

It is possible to provide an additional evaluation based on published toxicological benchmark values in water. These values have been derived for piscivorous birds and mammals based on no observed adverse effect levels (NOAELs) (Sample et al. 1996). Maximum predicted pit lake concentrations of the chemicals identified by the reviewer as bioaccumulative have been compared with benchmark values (Addendum B, Appendix J of SMI Baseline Report).

3-19c be in the pit lake, but were not studied at length in the SLRA.

CADMIUM

For instance, cadmium, a virulently toxic metal, will be present in the pit lake. It is a known teratogen and carcinogen and a probable mutagen. But its effects were not studied further in the SLRA because it did not violate water standards in the one-year pit lake, and was not thought to be bioaccumulative.

3-20

But the EPA's FATE and other sources, do consider cadmium to be bioaccumulative. And after the pit lake is 5 years old, cadmium levels will have increased by 40% (from .0005 mg/l after one year, to .0007 after 5-100 years) This predicted level of cadmium is known to cause observed effects in organisms exposed to it.¹¹ Yet it is not studied further in the SLRA.

3-20

SELENIUM

The SLRA also claims that selenium will be present in the one-year pit lake at only .004 mg/l, which is less than the water standard of .005, so selenium's impacts were then ignored. But after 5 and 100 years, selenium's impacts will increase to a level of .005.¹² So the SLRA is underestimating the pit lake's impacts by ignoring its own tables, and excluding selenium from further study, even though the SLRA's own data shows selenium levels in the pit lake will exceed the water quality standards after 5 years.

This is an especially troubling exclusion, because even trace levels of selenium are well known for its nightmarish impacts, including mass mortalities and birth defects, among water fowl at the Kesterson Refuge just a few hundred miles west and south of Reno.

Selenium causes reproductive failure and mortality in waterfowl at levels as low as .002 mg/l, compared to the levels of .005 it will reach in the Ollinghouse pit lake after 5 years.

¹¹Beisinger and Christensen (1972). Cited in University of California. Mining Waste Study. 1988. P. 37.

¹²After rounding.

Based on this comparison, selenium and zinc would be selected as chemicals of potential concern and would be quantitatively evaluated in the assessment. Inclusion of these two metals results in HQ well below 1.0, indicating that at these concentrations it is not likely that the selected receptors would experience adverse impacts, even considering the conservative assumptions of the assessment.

The comment points out that cadmium is a known carcinogen; however, aquatic organisms and wildlife are not generally evaluated with regard to potential carcinogenic risk. Perhaps the reviewer is confusing the issue of potential human exposure, which is evaluated in Table 2-3 of Appendix J in the SMI Baseline Report with potential wildlife exposure, which is evaluated in Table 2-2 of Appendix J of the SMI Baseline Report.

Cadmium would accumulate in fish and invertebrate tissue, but not to any significant degree, and it does not bioaccumulate in the food chain (Wrenn et al. 1995). Median bioconcentration factors for cadmium in fish are generally less than 100 (Kumada et al. 1980; Taylor 1983). Whole body BAF for trout and whitefish were less than one (Harrison 1989).

The reviewer states that the maximum predicted concentration of cadmium (0.0007 mg/L) is known to cause observed effects in organisms. This statement is not supported with any references; however, the literature does indicate that at low hardness (25 mg CaCO₃/L) the toxicity concentration can be as low as 0.0005 to 0.001 mg/L (Wrenn et al. 1995). It is well known that increased hardness, as predicted for the pit lake, results in lower cadmium toxicity (Carroll et al. 1979; Calamari et al. 1980). For this reason, aquatic life water quality criteria for cadmium are hardness-dependent. Therefore, exclusion of cadmium from further study is reasonable.

3-21

The reviewer states that the maximum predicted pit lake concentration would exceed 0.005 mg/L. This is incorrect. The predicted maximum concentration is 0.0048 mg/L. The lake concentration may approach the water quality standard after 100 years; however, that is unlikely given the conservative nature of the predictions.

The EPA Great Lakes Initiative (EPA 1995) lists selenium as a metal with a bioaccumulation factor less than 1,000 and a low propensity for biomagnification. However, we do recognize that there are data to indicate that, given the right conditions (i.e., Kesterson Refuge), selenium can produce adverse effects in birds at low levels. The EPA Ambient Water

3-21

Selenium is also noted in FATE and other sources, for its "extensive bioaccumulation," as high as a factor of 30,000,¹³ even though the Ollinghouse SLRA claims that Selenium is not bioaccumulative.

3-21 ↓
"Because of its propensity to bioaccumulate ... and to produce severe adverse reproductive effects as well as adult mortality, selenium should be recognized as a contaminant with the potential to markedly impact fish and wildlife population," says the United States Geological Survey. (cited below)

"Selenium is bioaccumulated by a number of aquatic organisms ... it is strongly correlated with the concentration of mercury and other heavy metals ... extreme toxicity at low concentrations." (FATE)

Nonetheless, the SLRA ignored the bioaccumulative aspects of selenium, and refused to study it further, leading to an underestimation of the pit lake's impacts.

ZINC

Likewise, the SLRA claims that Zinc is not bioaccumulative. The EPA'S FATE states otherwise:

"Zinc is bioaccumulated by all organisms. One noteworthy aspect of bioaccumulation is that it occurs even in the absence of abnormally high zinc concentrations. (Zinc's bioconcentration factor in freshwater fish is 1000)"

3-22 ↓
In addition, other EPA documents state that "accumulative potential for zinc has been reported to be 2000 times in gill tissue and bone of fish ... and 4000 times in freshwater plants."¹⁴

Quality Criteria (AWQC) (EPA 1988) provides a mean BAF in fish for selenium of 30.5, and bioaccumulation factors as high as 2,600 have been reported (Peterson and Nebecker 1992). Because of the disparity in the literature regarding selenium bioaccumulation, further evaluation of this constituent in the pit lake was performed. This additional evaluation indicated no potential for adverse impacts to avian or mammalian receptors (please see the addendum to Appendix J of the SMI Baseline Report).

3-22 Zinc toxicity is highly dependent on water hardness. Rainbow trout are 10 times more tolerant in hard water (386 mg CaCO₃/L) than soft water. Increased hardness appears to dramatically reduce the rates of zinc accumulation in fish tissue as uptake and excretion rates are altered (Bradley 1985). Chronic values for toxicity to freshwater organisms range from 37 to >5,000 ug/L (Suter 1996). The lowest chronic value for aquatic plants is 30 ug/L, as identified by the reviewer, with a range of 30 to 21,600 ug/L. Algae appear to be the more sensitive plant type. Based on the response to comment 3-19c, additional evaluation of zinc indicated no potential for adverse impacts to avian or mammalian receptors (please see the addendum to Appendix J of the SMI Baseline Report).

¹³USGS. Proceedings of the 1990 Billings Land Reclamation Symposium. Circular 1094. (1990). PP. 48, 53.

¹⁴EPA 1980, Nriagu 1980, Niek and Lee 1982.

Another EPA document states that:

"(Z)inc ion has a high potential to bioaccumulate ... and bioconcentration values (are) higher than 1000." (Federal Register, V. 60, No. 176, p. 47336)

3-22 ↓ The SLRA claims that Zinc will be present in the pit lake at levels of .031 mg/l. EPA studies show that at concentrations of .030, zinc inhibits plant growth, and that zinc kills 50% of certain exposed (LC50) aquatic species at .037. Given that pit lake Zinc levels will equal 80% of the lethal concentration for some species, and that it is bioaccumulative, the SLRA should have more accurately characterized zinc's toxic potential in The pit lake, and studied it further. The SLRA's failure to carry out this additional research has poisoned the DEIS' conclusion that the pit lake is safe.

ARSENIC

The SLRC ignored Arsenic after determining it would be present in the pit lake after one year at levels of .013 mg/l, and is not bioaccumulative. EPA's EATE disagrees, and considers arsenic bioaccumulative. In addition, The EPA and some states are also considering lowering the water quality standard for Arsenic, because the current standard for arsenic, even if obeyed, exposes humans to cancers of the skin, and to internal organs.

3-23 ↓ The EPA recently suggested lowering the arsenic standard to .00018 mg/l for drinking water, based in part over concerns about its bioaccumulative abilities. (FR V. 62 No. 98, p. 27708, 9. 5/21/97) Other published accounts state that EPA is considering an arsenic standard of only .002 to .005. In California, drinking water supplies containing over .01 mg/l of arsenic must be reported to the California EPA.¹⁵ Arsenic will also increase to a level of .016 in the pit lake after 5 years, which the SLRA did not take into account.

This information suggests that arsenic is bioaccumulative, contrary to the SLRA's assertions, and that arsenic's levels in

¹⁵Perlman, David. "Official Warns of Arsenic Risk in Water." SF Chronicle. 1996, quoting state EPA toxicologist Joseph Brown.

3-23

The value and citation that the reviewer has given regarding arsenic is for protection of human health in the state of Alaska only. Alaska bases human carcinogenic risk on an acceptable level of 1 in 100,000, as opposed to the EPA's acceptable risk level of 1 in 1,000,000. As a result, the EPA mandated surface water value for Alaska was 0.18 ug/L versus 0.018 ug/L provided in the EPA's AWQC (EPA 1985) document and stipulated for other states. The federal register notice states that the National Toxics Rule value for Alaska of 0.18 ug/L is being rescinded and is being replaced by the higher maximum contaminant level (MCL) of 50 ug/L. The comment regarding bioaccumulation of arsenic is without basis and is not supported by the referenced federal register notice.

Further, the comment about the EPA possibly lowering the water quality standard for arsenic in Alaska is incorrect. The federal register notes that National Academy of Sciences studies on the health risks posed by arsenic in water should be forthcoming in 1998, but gives no indication of preliminary findings. If the reviewer is suggesting that predicted water concentrations be compared with the arsenic AWQC value for protection of humans (0.018 ug/L), he should be aware that it was calculated based on consumption of 6 g/day of fish every day, and a BAF of 17 (snails). Clearly, this is not relevant to the pit lake, and the comment is confusing.

The commentor also states that EPA is considering arsenic standards of 0.002 and 0.005 (units unknown), but does not give a reference or indicate whether they are derived for protection of humans consuming fish. EPA is considering raising the amount of fish consumed to 15 g/day, which would lower the current AWQC value of 0.018 to around 0.005 ug/L. Perhaps this is what the reviewer is referring to; however, it is not relevant to the pit lake and the EPA has yet to issue any new standards.

3-23 ↓ the pit lake (.016 compared to suggested standards of .002, .005, 3-24 and .00018, and a notification level of .01) are cause for concern and further study, contrary to the SLRA's recommendations.

MANGANESE

The SLRA ignored potential impacts from Manganese after determining it would be in the pit lake at levels of .042 mg/l after one year, and it was not bioaccumulative.

But the EPA says, in sharp contrast, that Manganese is bioaccumulative, by a factor of 3000, with some studies suggesting a bioaccumulation factor as high as 100,000.

3-24 Manganese will also increase to a level of .053 after 100 years in the pit lake. One state has a water standard of .05 for Manganese. (Craig, John. "Water tested for Poisonous Metal." *Spokane Spokesman Review*. 7/10/94. PP B1-B2) Studies have found neurotoxicity in humans exposed to Manganese in drinking water at levels as low as .0023. (FR V. 60, #164, p. 44002, 8/24/95)

This data suggests that the SLRA incorrectly excluded Manganese impacts in the pit lake from further study, based on a erroneous denial of its bioaccumulativity and its apparent compliance with water standards, without taking into account its observed effect levels.

CONCLUSION: THE SLRA DOES NOT ACCURATELY DESCRIBE IMPACTS FROM THE PIT LAKE, AND THE DEIS RELIANCE ON THE SLRA FLAMES THE DEIS

3-25 The BCT urges that the observed effect levels for all pollutants in the pit lake, should be compared to the highest expected concentrations of those pollutants over the next 100 years, and those impacts should be described in a revised EIS. Mitigation measures to alleviate those impacts should be presented, including filling of the pit.

Manganese does bioaccumulate; however, quantitative data on manganese uptake at low concentrations by freshwater fish are lacking. In a recent study, Rouleau et al. (1995) determined that the BAF for freshwater fish was 17.8. Previous studies with freshwater fish reported a BAF of 22.6 in fathead minnows (Kwasnik et al. 1978) and a BAF of 12 in yellow perch (Kearns and Vetter 1982). Manganese is readily accumulated in fish tissue; however, the bioconcentration factor is very low.

The reviewer references a federal register notice regarding EPA's denial of a request to de-list manganese from the toxics list. The notice provides a review of the toxicological data presented in the EPA IRIS database (EPA 1997a). Neurotoxicity in humans has been noted in a study by Kondakis et al. (1989) at a concentration in water of 2,300 ug/L, or 2.3 mg/L. The value of 0.0023 (no units) provided by the reviewer does not correspond with either of the documented values. No other significant studies were identified in the federal register notice.

The reviewer states that manganese was erroneously excluded based on denial of bioaccumulativity and its apparent compliance with water standards, without taking into account its observed effect levels. The stated observed effect level is incorrect, and predicted pit lake concentrations do not exceed observed effect levels reported in the literature.

3-25 NEPA does not require worst case scenario analysis (see response to comment 2-3). Standard ecological risk assessment procedures as outlined by the State of Nevada and EPA were used in the selection of COPCs. Observed effect levels are incorporated in AWQC, EPA's list of bioaccumulators, and NOAELs selected for use in the SLRA. Use of the highest predicted concentrations over the next 100 years does not alter the selected list of COPCs for evaluation in the SLRA.

LETTER 3 CONTINUED, TOM MEYERS, Ph.D., AND WENDY KUNTZ (3a)Review of the Olinghouse Mine Project
Draft Environmental Impact Statement

Review of Water Resources and Biologic Impacts

Prepared for the Northern Nevada Building Trades Council

Tom Myers, Ph.D. and Wendy Kuntz¹

The Olinghouse Mine Project proposal by Alta Gold Co. is located about 5 miles northwest of Wadsworth, Nevada. The project consists of creating a series of small open pits which will eventually be combined into one larger pit. This proposal is for a five year operating plan, however, the Draft Environmental Impact Statement (DEIS) discusses reserves for at least five additional years. Alta's press releases, as seen on the WEB, emphasize the acquisition of 4000 additional acres of claims in the vicinity of Olinghouse with additional unproven reserves. Apparently, Alta believes this area will be a major resource for several decades. Because the BLM analyzes only a small portion of the reserves, Alta will be able to establish a mine and any future NEPA analysis will be for expansions of an existing mine. In those future analyses, the No Action alternative will be completion of the existing mine. The baseline against which impacts are compared is an existing mine. This review focuses on water resources, contamination and biological resources. Because a major concern with this proposal is that it is the beginning of a series of piecemeal developments, for many subjects, this analysis briefly addresses impacts of future development including increasing the size of the pit and increasing the period of production pumping.

Water Resources

There are several major concerns about this mine project on the water resources of the south end of the Pah Rah Mountains, the Dodge Flat aquifer, and the Truckee River. These are dewatering and formation of a pit lake at the mine site, potential contamination of the Dodge Flat aquifer from spills at the site, contamination of the Dodge Flat aquifer, Truckee River and Pyramid Lake from transport of settled airborne mercury, and drawdown and instream flow effects of the production well proposed near the Truckee River in the Dodge Flat aquifer. Several of these concerns become much more important as the mine expands beyond its current five-year operating plan as Alta appears to be planning.

¹ Tom Myers prepared the water resources and contamination portion. He has a Ph.D. in Hydrology/Hydrogeology. Wendy Kuntz prepared the biological resources portion of this review. She is completing a MS in Conservation Biology and has several years of research experience with agencies and environmental groups.

Assessment of Dewatering and the Proposed Pit Lake

There are two proposed pits to be excavated about 500 feet and eventually combined to form one pit (although this is very poorly described in the DEIS). The pit will extend about 90 feet below preexisting groundwater levels resulting in the formation of a pit lake with surface area of 3.4 acres and long-term evaporation of 13 afy. Dewatering was estimated to be near 270 gpm based on Darcy's law calculations of flow through the area (SMIB³, page 6). However, SMIB (page 9), referring to the groundwater model, estimates that dewatering will be between 10 and 100 gpm, with "[h]igher groundwater flow rates...expected during initial dewatering" and lower rates eventually obtained near 10 to 100 gpm (SMIB, page 9). Apparently, dewatering will occur by pumping from the pit (DEIS, page 2-8). The writeup on the model (SMIB, Appendix A) does not discuss predictions of dewatering, therefore the reference in the report (SMIB) is to an appendix that does not discuss what is being referenced. This makes the reference (SMIB) difficult to assess. I assume the estimates come from Figure A-12 which shows inflow rates at various pit lake stages. For various reasons to be discussed in the following paragraphs, Figure A-12 is counterintuitive and the entire model is suspect.

Pit Lake Model

The water balance of the pit lake is completed with the model PITQUAL which is simply a mass balance of water (and contaminants) in the lake. The primary input to the lake, and that subject to the most interpretation, is the groundwater modeling to be discussed in the next two subsections. However, surface water inflow to the lake is suspect as well.

SMIB (Appendix A, page A-7) assumes that "15 percent of precipitation falling on the pit walls would flow as surface water runoff into the pit". It also assumes "negligible infiltration", "so that 85 percent of precipitation would evaporate". There is no reference for this. Most figures suggest that the pit lake walls will slope toward the lake. These walls will be bedrock, with very little infiltration. There will likely be very few roughness factors, such as sumps, berms, rocks, that will impede flow to the pit. Considering standard SCS Curve Number calculations for runoff, the more impervious soils yield more than fifty percent for large storms. Pavement yields as much as 95 percent. It is unreasonable to assume that 85% of a major storm will evaporate. The pit water balance should be recalculated to account for the imperviousness of the walls. If runoff is closer to 85 percent, then steady state flows to the pit will increase from 10.5 (Table A-7, SMIB) to 59.5 afy.

³ The analysis of pit lake hydrology is contained in: Shepherd Miller, Inc., 1997. Appendix B: General Hydrology and Water Balance Model for the Proposed Olinghouse Open-pit Gold Mine, Washoe County, Nevada. Prepared for Alts Gold Co., Shepherd Miller, Inc. Fort Collins, CO. Referred throughout as SMIB.

3a-1 The 270-gpm flow discussed in this section is the estimated natural groundwater flow in the general vicinity of the pit based on Darcy's Law and does not take into account pit dimensions. It is used to discuss the local groundwater flow regime. The text does not refer to dewatering. This natural flow rate is not directly related to pit dewatering.

3a-2 The reference to Appendix A on page 9 of Appendix B of the SMI Baseline Report refers to the groundwater model presentation as a whole. The range of predicted groundwater inflows to the pit (not dewatering rates, as the reviewer has suggested) can be found in Figures A9 and A12, Table A7, and in the text on page A-20.

3a-3 Although intense rainstorms may produce runoff as high as 85% to 90% of a precipitation event, snowfall and more gentle rainstorms may produce little or no runoff. The water balance is based on an average annual basis, not on an individual storm event basis. Intense precipitation events at the proposed Olinghouse mine site are likely rare, as described in the SMI Baseline Report (Appendix B, page 2).

For a 3-inch precipitation event, runoff from an area with a curve number of 95 produces 2.9 times the runoff from an area with a curve number of 73, which was used to estimate upland runoff at the site (4.5% of annual precipitation). Therefore, the assumed 15% factor can be considered conservative because it is roughly 3.3 times the percentage of runoff calculated for the upland runoff areas and because 94 is the largest curve number found in Schwab et al. 1981.

The most important thing to keep in mind in assessing runoff from the pit walls is that the final pit lake elevation is relatively insensitive to this input variable, as shown in the SMI Baseline Report (Appendix B, Figure A22).

Structure and Calibration of the Groundwater Model

SMI used the analytic model TWODAN to analyze flows around and into the pitlake. If the model structure is correct, this code is adequate for this task³. In fact, because of the gradients in the vicinity of the pit, this may be the best code⁴. However, we have little confidence in the structure of the model or in its calibration.

There were two separate model structures used. First, there was a horizontal model where the aquifer was assumed to be 100 feet thick with constant head boundaries 10000 feet up and down-gradient. SMI used the gradient observed at the proposed pit and extrapolated to the boundary to set the constant head. This yielded a head of 9070 feet at the upstream, about 1370 feet above the top of the mountain and 1930 feet at the downstream boundary, or about 2000 feet below the ground in Dodge Flat. SMI indicates that the model boundaries are not indicative of field conditions, but states that "it does provide for appropriate ground water conditions in the area of the pit lake" (SMIb, page A-12). The DEIS states that gradient decreases to 0.05 "between the pit area and the project area boundary" (DEIS, page 3-12). This changing head suggests that the assumption of uniform flow (where the slope is constant along the direction of the flow) is incorrect.

Lateral boundaries are no-flow boundaries. Essentially, the horizontal model assumes a homogeneous 100-foot thick aquifer with no flow from below to analyze the pit in this extremely complex geologic environment. The presented model is little more than an academic exercise with predictions no more valid or useful than a grad student's homework results. The chosen model, TWODAN, is quite versatile and described as being capable of modeling "layered, heterogeneous unconfined and/or confined aquifers" with "capabilities...wells, line-sinks, inhomogeneities, uniform flow, global recharge, and local recharge" (from an advertisement for TWODAN in the Rockware 1995 Software Catalog). There is no software reason for simplifying the aquifer to such triviality.

The assumptions used to justify the horizontal model (Table A-5, SMIb, page A-11) are insufficient, incorrect and/or unsubstantiated as well. First, the assumption of homogeneity and isotropy is not justified by the data. The aquifer material is faulted and fractured which leads to preferential flow paths and conductivity in one direction being vastly different than in another direction. The second assumption of steady-state, uniform flow is not substantiated by any data presented. This would require a time series of well levels showing little annual variation in levels. The assumption of a 100-foot thickness implies there will be no vertical flow to the pit from below. Based on discussions elsewhere regarding regional flow, there will be vertical flow to the pit. Also, results from the vertical section model where the aquifer if modeled as being 1000 feet

3a-4

The horizontal model was used as a preliminary estimate for inflows to the pit area. It was not used or intended to be used as a regional (basin scale) model (SMI Baseline Report, Appendix B, page A-9). This model was not used to quantify impacts, but served to corroborate results of the vertical model which was used to quantify impacts. The purpose of the horizontal model was to assess flow to the proposed pit area from a laterally extensive aquifer with a uniform hydraulic gradient.

The imposed boundary conditions were required in order to create these conditions mathematically within the pit area. By setting up the model in this manner, predicted flow conditions in the proposed pit area were not significantly influenced by the boundaries (SMI Baseline Report, Appendix B, page A-9).

3a-5

The elevations are correct, but they have no bearing because they were used for calibration over the proposed pit area where the gradients match the water table.

3a-6

The flow conditions and gradients within the proposed pit area are insensitive to changes in gradients and flow conditions outside the pit area.

3a-7

Please refer to the response to comment 3a-4 (paragraph 1).

3a-8

Theoretical work has demonstrated that small scale heterogeneities and anisotropies can be adequately simulated at the large scale using homogeneous and isotropic conditions and bulk hydraulic conductivity values. The uniform flow assumption is valid over the area of interest. On-site water level data from wells indicate the existence of a relatively uniform gradient through the proposed pit area. The steady-state assumption is valid because: 1) the time frame of interest is long (i.e., seasonal changes are averaged out); 2) there is no evidence that the system has been subjected to significant man-induced stresses; and 3) the regional flow component is a significant proportion of the groundwater flow at this site. Regional flow systems tend to show much less change with time than do shallow alluvial systems. Also, please refer to the response to comment 3a-4 (paragraph 1).

³ Appendix A of SMIb describes the details of the modeling in section A.2.3.

⁴ This is because finite difference codes may violate Dupuit-Forchheimer assumptions when modeling flow with a steep gradient near a pit.

3a-8 thick shows substantial vertical flow to the pit. Figure A15 shows at least one flow tube (of a total of three) entering the bottom of the pit. If this figure is correct (see discussion below), it implies that as much as one third of the flow to the pit is from below the pit and indicates that the assumption for the horizontal model is incorrect. The assumption about pit geometry is hard to interpret since the aquifer is modeled as one layer. How are different layers of the pit lake modeled?

3a-11 Calibration of the horizontal model is interesting. It is suggested that the calibration targets are the overall hydraulic gradient across the area of interest (0.357) and the pre-mining head at the center of the pit (5496' msl). These targets were built into the structure by setting the boundary conditions, 10,000 feet up- and downgradient, with the observed gradient and the head. There would be no need to adjust "the hydraulic heads on the upgradient and downgradient boundaries until the gradient and hydraulic head ... were correctly simulated" (SMI, page A-14). In fact, this is confusing in that calibration usually consists of determining hydraulic parameters rather than boundary levels. But, if heads were set using the observed gradient, the model should reproduce the gradient as specified and the only changeable output would be the flow rate which would simply depend on the gradient, aquifer thickness and hydraulic conductivity. In other words, this model is simply a sloping plane with 100 foot thickness with a pit lake imposed on it. The fact that the gradient of the flow (0.05, DEIS, page 3-12) decreases below the pit requires a change in transmissivity (either aquifer thickness or conductivity) which should be the parameter calibrated for.

3a-12 The vertical model has many problems as well. First, there is no evidence presented that aquifer conditions below the pit are similar to those actually logged, yet the vertical model assumes a 1000 foot thickness. In fact, at the BLM's open house for this project, the representative from SMI told us that they had no indication of the geology below the pit⁴. How is it justifiable to assume homogeneous, isotropic conditions for 1000 feet of aquifer, in a geologically complex region (see the Geology Appendix for discussion about fractures, faults, etc.).

3a-15 There also appears to be a problem with the vertical structure, or at least in the way the results are presented. Figure A15 shows a flow line intersecting the phreatic surface just upstream from the pit. In a cross-section view, the phreatic surface is a flow line and flow lines cannot intersect. While this may be a presentation problem rather than a model problem, it indicates that results of the model should be interpreted with suspicion.

3a-16 The vertical section does have several units with differing hydraulic conductivity. Calibration targets were well levels interpolated from observed well levels at 11 points. However, the slope of the regression line between target and simulated heads is 1.07 which suggests that a 7 percent trend exists. In other words, the target and simulated heads diverge by 7 percent which

⁴This was in reference to a question from Myers about what would happen if the pit were deepened. He indicated they knew nothing about the geology below the pit.

3a-9 Please refer to the response to comment 3a-4 (paragraph 1).

3a-10 Only one layer was used for the preliminary horizontal pit lake model. As pit lake depth increases, the size of the analytical elements representing the pit lake increases.

3a-11 The reviewer's comments are correct and reflect the intended use of this analysis to provide a preliminary estimate of pit inflow. These results were not used to quantify impacts (please refer to the response to comment 3a-4 [paragraph 1]).

3a-12 The geology below the proposed pit is similar to the pit geology (please see the SMI Baseline Report, Appendices A and B, Figures 3 and 6, respectively).

3a-13 A cross-section of the geology below the pit was shown at BLM's open house in Reno, and this cross-section is available in SMI's Baseline Report.

3a-14 For the vertical model, several zones, each with uniform properties, were used to approximate the known hydrogeology (please refer to the response to comment 3a-8 with the exception of the last sentence). The pit influence on groundwater extends a maximum of 200 ft below the pit. Therefore, 1,000-ft-thick aquifer was assumed in the model so as to not influence the prediction of vertical inflows to the pit (please see the SMI Baseline Report, Appendix B, pages 6 and A-12).

3a-15 Due to the scale of this drawing and an annotation error, it appears that the flow intersects the top of the groundwater table, while in reality it does not.

3a-16 Some error is expected when modeling geologically complex areas. This error has been discussed and amounts to less than 6% over the modeled area (please see SMI Baseline Report, Appendix B, page A-15)

The writer has apparently misunderstood the text. The reported average residual of 3.86 indicates that the model tends to overpredict heads in the area by 3.86 ft. The standard deviation of 12.4 ft is relevant in that it tells the reader that only 3% of the modeled head drop across the model domain is likely due to the error associated with the model.

3a-16 over 400 feet is 28 feet. The magnitude of average residual is 3.86 (SM1b, page A-15) which the report indicates is good but is actually irrelevant because a mean averages high negative and positive residuals, negating the magnitude of each. Table A-6 (SM1b, page A-15) shows that simulated heads frequently miss the observed by near 13 feet. Comparison of the standard deviation of residuals to the total head drop (SM1b, page A-15) is irrelevant; rather the standard deviation suggests that the magnitude of error approaches an average near 12.4 feet which agrees with Table A-6.

Results of the Groundwater Model

3a-17a Figure A12 (SM1b, Appendix A) shows pit lake inflow rates are minimum when the lake is empty (at the end of dewatering, flows into the pit range from 0 to 20 gpm from stage 5410 to 5430). This is counterintuitive because flows increase when gradients increase which is the effect of lowering the groundwater level at the pit. It also disagrees with many of the pit lake models for other mines in Nevada to which flow at empty conditions, after the aquifer near the mine is rewatered, is very high. Much of the flow to these mine is through the bottom which would occur here. More importantly, it contradicts Table A-7, which is determined from the same modeling effort. Table A-7 shows that, at steady state conditions, after the pit lake is formed, there will be 30.4 gpm inflow to the lake from above the lake surface. That is above the level of the lake from the seepage face. This seepage face would exist, and be much thicker, even when the pit is dry and being dewatered from sump pumps. There would be some drawdown of the seepage face, but Figure A12 implies the level would drop to close to the bottom of the pit. This also contradicts Figure A15 which shows a substantial seepage face at the cessation of mining. Using the profile shown on Figure A5, it appears that the dewatered portion of the aquifer would be wedge-shaped, 200 feet thick at the downstream end and 5000 feet long. The width of the pit can be assumed to be near 400 feet. This yields a volume of $400' \times (200' \times 5000')$ or 200,000,000 ft³ or 4591 af. If the porosity is 0.01, the dewatered volume is 45.9 af. There is no discussion of porosity, so this is a guess. Also, assuming a 400 foot width does not account for the capture zone of the drawdown to the pit. Water will be drawn to the pit from the north and south, although, because of the high gradient, this "zone of capture" may be narrow. SM1b (page 7) suggests that recharge above the pit is only 6.3 to 13 af/y and indicates substantial vertical flow exists. Because the springs and seeps above the pit are suggested to result from perched water (DEIS, page 3-12), it is possible that much of the estimated recharge never reaches the level of the pit. As the phreatic surface draws down to meet the bottom of the pit, the upward gradient from the apparent artesian pressure would increase and flow to the pit from below might actually increase. (An important corollary to this is if SM1b is correct in that flows to the pit are so small and if our arguments for additional flow are incorrect, then statements that production pumping in Dodge Flat will be reduced by substitution of dewatering water are wrong and should be removed from the DEIS documents.)

3a-18 The modelers assumed a characteristic width of each streamtube to be 45 percent of the pit perimeter at the elevation of the intersection (SM1b, page A-16). This seems to be a high value. Substantial flow convergence occurs in a streamtube at a circular boundary. Assuming

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3a-17a Please see the SM1 Baseline Report, Appendix B, page A-16. Inflow rates are controlled not only by gradients, but also by pit geometry and local hydrogeology. In this case, due to the particular geometry of this pit, this "counterintuitive" flow scenario is predicted. This case does not apply to all other pits.

3a-17b Several factors control the predicted groundwater flow to the pit, and the most important is the cross-sectional area of flow. At the deeper portions of the pit, the seepage face is thick, but it has much less area to flow through than it does as the pit begins to fill.

3a-17c The profile on Figure A-5 shows model framework (i.e., boundary elements and heterogeneity features). The de-watered portion of the aquifer would be a "wedge" shape, 90 ft deep on the thick end (i.e., depth of the final pit below the pre-mining water table) as stated in the SM1 Baseline Report, Appendix B, page 10. This would decrease the reviewer's estimate by approximately half to 23 acre-ft. Assuming that it takes 5 years to remove this water from storage, the average flow rate would be approximately 3 gpm. This is a small fraction of the overall predicted flow rate, and the assumption of steady state is further supported.

3a-17d The reviewer misquoted the text. Nowhere in the report does SM1 refer to substantial vertical flows. Page 7 of the SM1 Baseline Report, Appendix B, discusses a regional flow component, not a vertical one.

3a-18 Please see the discussion of water balance sensitivity in the SM1 Baseline Report, Appendix B, page A-19 and Figure A-22. The overall pit lake predictions are relatively insensitive to the method employed for choosing the characteristic width.

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3a-18 † that a vertical section, which ignores this convergence, provides ad-quate flow velocities and head 3a-19a distributions for a stream tube is questionable. BLM should reconsider these assumptions.

3a-19a The reference to a substantial regional flow component (SMib, page 7) is important but ignored in the rest of the analysis. This project will reduce what must be artesian pressure. In other words, that water at the level of the pit comes from regional flow, there must be an upward flow component in the regional flow. (This is obvious because recharge estimated upgradient from the pit does not account for the observed flow through the pit area (and may be an overestimate because aquifers may intercept the recharge for seeps) and because of the temperature observed in the water (SMib, page 7).) Neither groundwater model accounts for any vertical gradient of head in the groundwater because of the assumption, and calculation rather than measurement of, constant head boundaries up- and downstream of the pit. Decreasing this pressure will affect all springs attached to this regional flow aquifer. There must be an analysis of impacts on the regional flow to determine which springs will be affected (rather than just stating that only the seep in Frank Free Canyon will be impacted by the waste rock dump). A first start would be to redo the groundwater model considering additional layers with some pressure on the boundaries at the low layers. A multi-layer model would also allow assessment of the assumptions of vertical isotropy. Fractures would allow preferential flow and a multi-layer model would allow assessment of this.

3a-20 The pit lake will evaporate water forever. This represents a small, but measurable consumptive use on the groundwater of the Pah Rah Mountains and the recharge to the Dodge Flat aquifer. Alta should be required to obtain a water right for this use, which is essentially a long-term waste.

Impacts Due to Expansion

3a-21 Any expansion of the pit will increase the amounts of water intercepted by the pit. As the pit deepens, the velocity of flow to the pit increases by the square of the depth⁶. As the pit deepens and widens, the discharge to the pit increases according to the area intercepted by the additional pit⁷. At this point, there is no information about aquifer properties below the pit⁸, therefore it is impossible to predict whether conductivity will change. However, as noted above, there appears to be an upward gradient to flow beneath the pit. Deepening the pit will further tap into the regional flow and would dry seeps and springs further from the pit. A larger pit will evaporate more, require more water rights and decrease the perennial recharge to the Dodge Flat aquifer.

Summary

⁶ According to the Dupuit-Forchheimer discharge formula. Bear, 1972.

⁷ According to the principle of continuity, flow through an area equals the product of the velocity and area.

3a-24 ⁸ Although SMib does assume a 1000' thick section with homogeneous aquifer properties.

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The reviewer has misquoted the text. Nowhere in the report does SMI refer to substantial regional flows. Regional, for the purpose of Appendix B in the SMI Baseline Report, is defined as flow from outside of the immediate surface drainage area contributing to the proposed pit, as shown in the SMI Baseline Report at Appendix B, Figure A-1. The regional flow is used in modeling because it is the main source of water supplied to the pit model, and it is represented by the upgradient constant head boundary. Artesian conditions were not encountered during drilling of the monitoring wells or piezometer. Considerable effort was spent determining if artesian conditions are present. An upward regional flow component does not exist within the proposed pit area and probably is not connected to springs and seeps within the study boundary for the reasons listed in the response to comment 1-19 and for the following additional reasons.

- 1) The local recharge area upgradient of the proposed pit is very small when compared to the potential regional recharge area upgradient of the proposed pit.
- 2) As depth of bedrock increases, fractures tend to close, reducing groundwater flow at depth and limiting vertical flow. A more likely explanation is that groundwater flows horizontally into the pit area from outside the surface drainage divides (not groundwater drainage divides), and the magnitude of groundwater flow into the proposed pit can be explained by the size of the recharge area to the northwest of the proposed pit area.

The boundaries are sufficiently far away from the proposed pit so as to not affect predictions at or near the proposed pit

Neither information collected to-date nor site conceptualization support this type of modeling. Site geology does not justify a horizontal layer model, but inclined layers have been incorporated in the vertical model based on the site geology (see SMI Baseline Report, Appendix B, Figure A-5).

3a-19c Fracture flow was taken into account in the groundwater modeling by using an equivalent porous media approach as described in Freeze and Cherry (1979).

3a-20 A water right for the pit lake is not required until closure, at which time Alta would obtain such a right as per NDEP regulations.

- 3a-21 Monitoring wells MW-4, MW-06, and piezometer P-01 are completed at elevations below the pit bottom elevation and were used for aquifer testing.
- 3a-22 Please refer to the response to comment 3a-19a (after the first two sentences).
- 3a-23 Please refer to the response to comment 3a-20.
- 3a-24 Please refer to the responses to comments 3a-13, 3a-14, and 3a-21.

3a-25

Because of the quality of the groundwater model structure, calibration and results, there is little confidence in the predictions. Because of the lack of analysis of potential effects on the regional aquifer, as represented by the upward pressure apparent from the thermal properties of the water, there is little confidence in the assessment of the hydrogeology of the pit dewatering and future pit lake. BLM should redo this analysis prior to permitting this project, determining mitigation and setting bonds.

Assessment of Potential Contamination Due to Spills and Seepage

3a-26

The waste rock dump will be built over most of Frank Free Canyon. The DEIS discusses flow through the dump in several locations. It acknowledges that more water will infiltrate (page 4-8), yet states that seepage from the dump will not emerge until long after mining ceases (page 4-10). Because the dump will be porous and because the upper part of the canyon is mostly bedrock, much of the seepage will become flow in Frank Free Canyon. The canyon is not a recharge zone; the slow flow velocities through the dump will not infiltrate and will likely become surface flow. Thus, any contamination by the waste rock dump would discharge to surface sources. In fact, any additional flow in Frank Free Canyon represents a surface discharge due to this project and Alta must obtain a discharge permit from the Nevada Dept. of Environmental Protection. According to the BLM's permitting regulations (43 CFR §3809), BLM must ensure that Alta follows applicable state law.

3a-27

The leach ponds will be constructed in a canyon south of Olinghouse Canyon. Figure 2.6 indicates that storm water will be diverted around the heap leach pad in a ditch designed to pass the 100-year, 24-hour storm runoff. There is no analysis of this flow presented in the DEIS and the public should be able to assess the adequacy of the design. There is also a working pond channel designed to pass runoff from the heap leach pad to the working pond which also has an overflow to a storm event pond. These ponds are designed to capture all runoff from a 25-year, 24-hour storm. Again, BLM provides no analysis of runoff from the heap leach pad. Because this material is saturated with a cyanide solution, there will be little room for precipitation to infiltrate into the pad. Thus, most of this will runoff into these ponds. The total area appears to be about 70 acres and the combined capacity of the ponds is about 21.5 af, (there is no discussion of freeboard). This should hold up to about 3 1/2 inches of runoff from 70 acres which actually exceeds the 25-year rainfall. However, these ponds hold a very toxic runoff and the consequences of failure are quite high. If there is no freeboard, as the levels approach the top of the ponds, there is a high risk of failure even with a perfect design. If we assume that failure occurs if the 25-year event, the designed volume, is exceeded, we can calculate the risk of failure in a seven year project life with a form of the Bernoulli equation.

$$f_p(x;p,p) = \binom{n}{x} p^x q^{n-x}$$

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3a-25

Please refer to responses to comments 3a-1 through 3a-24. The reviewer has provided an opinion only and has not provided mathematical evaluations of water temperatures to justify the assumption that upward flow is large versus horizontal flow. We believe a high level of confidence can be placed in the predictions for the following reasons:

- 1) the site conceptualization is supported by actual site data;
- 2) the analytical model chosen is appropriate to represent the site conceptualization (as the reviewer stated on page 3, paragraph 1 of the his comments);
- 3) inputs to the analytical models were based on actual site data; and
- 4) the validity of the modeling predictions is supported by the high degree of correlation between observed and simulated heads and the high sensitivity to small changes to input parameters.

3a-26

Please refer to the DEIS at 4-8. Porous materials of the dump and, for that matter, the reclaimed soil, favor infiltration rather than runoff in most precipitation events. This is, however, also the natural condition of hillslopes in the canyon. Therefore, it is not anticipated that "more" water would infiltrate. In fact, a cover that fosters plant growth (therefore keeping water cycling to the cover layer only) and runoff controls for the dump would reduce surface flow in the area of the canyon covered by the dump, hence the statement in the DEIS that seepage would not occur until well after mining ceases.

3a-27

The leach pad would actually be constructed not in a canyon but on the interluve between two drainages. Analysis of this flow is presented in the DEIS at 2-15 in Tables 2.3 and 2.4, as well as in the referenced technical documents (e.g., JBR 1997c). The capacity of the event pond, as noted in the response to comment 1-1, is being increased to hold a 24-hour 100-year storm. With this increased capacity, the probability of the event pond overtopping (not failing catastrophically, as is implied by the reviewer) during a 7-year mine life is 6.8 %.

3a-27

Here, x is the number of times the event occurs (1), p is the probability of occurrence (0.04 per year), and q is 1-p. There is a 0.219 probability of a 25-year flood in seven years (mining plus processing life) or 21.9 percent chance of failure.

3a-28

It should be noted that if a release were to occur during the flood from a 100-year storm, it would be diluted by surface flows on the order of 500 cfs (JBR 1996f).

3a-28

The DEIS indicates that most spills would not flow far down the canyon because it is normally dry. The problem with this argument is that failure is most likely during heavy rain (T>25 years) which would probably cause surface flow in the canyon to the river or at least well onto Dodge Flat where it would infiltrate and carry contaminated recharge to the aquifer. The BLM should add an analysis of the opportunity for transport of contaminated heap leach material across Dodge Flat to the river and infiltrating into the aquifer.

3a-29

Please refer to the responses to comments 1-1 and 2-34.

3a-30

Please refer to the response to comment 1-1.

3a-31

Please refer to the response to comment 1-27.

3a-29

Another neglected point in the DEIS is the prevalence of earthquakes in the area. The UNR Seismological Lab indicates that Olinghouse was the epicenter of a 6.4 Richter scale earthquake in 1882. Most of western Nevada is at substantial risk of earthquake caused failure of heap leach ponds. While it is difficult to argue that an earthquake would coincide with rainfall, it is apparent that the BLM is neglecting the potential for serious contamination of the aquifer, Truckee River and Pyramid Lake due to heap leach failures.

Impacts Due to Expansion

If the project life extends, the probability of failure of a heap leach pond or contamination reaching Pyramid Lake increases. In general the risk of one occurrence of a T-year event in T years is:

3a-30

$$1 - (1 - \frac{1}{T})^T$$

If the project life becomes 25 years (the return interval of the design), there becomes a 0.64 probability, or 64 percent chance of failure at some point during the project. The BLM must consider these potential impacts on Pyramid Lake and mitigate for them.

Assessment of Potential Mercury Pollution on Water Resources

3a-31

Table 2.10 (DEIS, page 2-22) shows that 0.99 tons/year of mercury retort will be released to the air. Much of this will probably settle within a few miles of emission, although we did not see discussion of this. The Truckee River and its drainage is downwind of the site. It is probably reasonable to assume that about 1 ton/year will settle in the drainage. BLM should analyze the impacts of overland flow erosion moving this mercury to the river and the impacts that it will have on Pyramid Lake. This is potentially significant when it is considered that Lake Powell in southern Utah receives 2200 kg/yr (2.4 English tons/yr), partially from natural erosion of Mancos shale and partially from settling of mercury from emissions from the Navajo Generating Station. Fish flesh from Lake Powell has 700 parts/billion of mercury in it. It is essential to recognize that

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Lake Powell averages about 22,000,000 af in volume, or about 20 times that of Pyramid Lake. Thus, it appears that loadings of mercury to Pyramid Lake approach those of Lake Powell with much less volume. Is the BLM willing to accept the risks inherent with this kind of potential loading on the listed species in Pyramid Lake?

3a-31a Comment noted.

3a-31

Impacts of Expanded Project

The potential loading will continue for many more years and mercury will have the potential to bioaccumulate in the flesh of fish species in Pyramid Lake. This is unacceptable with endangered cut-tail and threatened Lahontan cutthroat trout.

Assessment of Impacts to the Dodge Flat Aquifer and the Truckee River

The DEIS does not mention that a groundwater model was completed for this project, but merely cites a study showing minimal impacts on the Truckee River. The citation⁹ discusses a groundwater model. There is no discussion in the DEIS of the model which is a disservice to the public who may not have time to travel to BLM offices to review the technical documents. In dozens of other mining projects in different BLM districts¹⁰, the DEIS describes the model for several pages, not being too technical but providing the reader with enough of a description that they have confidence in the analysis. It seems that if the BLM can provide detailed descriptions of soils and their erosion hazard in a table that requires an entire page (Table 3.3), they can describe the groundwater model and provide a few figures.¹¹

3a-31a

The DEIS states that downstream from Wadsworth, there is 8575 afy inflow to the Truckee from the Dodge Flat aquifer and references the PTI study. The PTI study shows that this estimate comes from the calibration of the groundwater model. However, flow to the Truckee River is the third calibration target (PTI, page 13) which means that aquifer parameters were adjusted so that the flow to the river matched an independent estimate. PTI relied on an estimate provided by a US Geological Survey employee and referenced an estimate of 11.4 cfs to the river as a personal communication¹¹. NEPA documents must provide adequate documentation of all estimates and make that documentation available for public inspection. It is inadequate and inappropriate to reference an individual without providing his/her measurements and calculations for review. Because the estimate is based on measurements (PTI, page 5), there would be no

3a-32

⁹ PTI Environmental Services, 1997. Effects of pumping the proposed Olinghouse Mine supply well on Dodge Flat and the Truckee River, Washoe County, Nevada. Prepared for Bureau of Land Management, Carson City Field Office, 1535 Hot Springs Road, Carson City, Nevada 89706-0638. Hereinafter referred to as PTI.

¹⁰ See for example, Twin Creeks, Lone Tree, Pipeline, Griffon (also promoted by Alta) on FS land, LJ Ridge, Barrick Goldstrike, Gold Quarry, Chemgobl (in southern California).

¹¹ See the reference in the PTI report to Berris 1997, personal communication.

3a-32

difficulty including a better reference. In fact, this may violate applicable CEQ regulations¹². The estimate provided in the DEIS is based on an unreviewable personal communication since PTI calibrated the groundwater model so that flow to the river would equal the personal communication.

3a-33

Calibration of the Groundwater Model

PTI based their calibration on the static groundwater elevation in the vicinity of the production well, additional well levels about 10 miles away and flow to the Truckee River. Calibration is the process by which the modeler adjusts model parameters in a steady state model to match targets.

3a-33

It is common to use well level elevations as a target, but not the average of several wells. PTI sought to model a groundwater elevation of 4028, the average for monitoring wells 1 through 7 that ranged from 4010 to 4035. There is not a sufficient map of these wells provided that shows the groundwater elevation, therefore we plotted the wells onto 1:100,000 maps of the aquifer using GIS technology. PTI provided partial well logs in Table 1. Upon plotting the wells and examining depths to water and groundwater elevations, it immediately became obvious that the Dodge Flat aquifer is in a stressed condition. The groundwater elevations used by PTI for calibration are the depth to water subtracted from the surface elevation. The attached map shows the wells¹³; the labels are the groundwater elevations at static conditions which PTI used for calibration. The static conditions are the level to which water rises in a newly dug well. In an undeveloped area, it should represent water level conditions in an undeveloped state. The contours were drawn using only wells dug since 1980 because water levels in earlier well were much higher than the newer wells. For example, groundwater elevations of 4160.7, 4082.5 and 4194 were observed in wells dug in 1964, 1968 and 1948, respectively (well numbers 8349, 18079, and 720). Well number 8349 shows that water was first reached at 159 feet below the surface but that it rose to 65 feet below the surface. Well number 720 also rose above its first water level. These wells initially exhibited confined conditions where water is under pressure and rise to a hydrostatic level when well is sunk into it. The wells used for calibration, MW1 through MW7, did not have depth to first water listed, but the groundwater elevations were substantially lower than the older wells. What is the explanation for this? Clearly, levels have dropped substantially. The lone well with an observation closer to the mountain front allowed construction

PTI (1997) calibrated to an average groundwater elevation for precisely the reasons outlined by the reviewer, as well as because the control on the well elevations was poor. The variations in groundwater levels noted by the reviewer are not unusual based on the available data, and could be explained by various hypotheses other than transient conditions. These explanations would include: poor elevation control on the wells; considerable spatial heterogeneity in Dodge Flat aquifer materials allowing water to be locally perched (likely, as most of the wells are at or near the contact between dominantly coarse-grained alluvial fan materials and dominantly fine-grained lacustrine materials); annual variation in recharge; and pumping of the aquifer by Nevada Land and Water Co. shortly before the water level measurements were made. The MODFLOW representation of Dodge Flat used in PTI (1997) was a single layer model (i.e., unconsolidated materials above bedrock) in each of three zones: 1) Truckee River alluvial deposits, 2) lacustrine deposits, and 3) alluvial fan deposits. We have confidence in the results of the model when applied to its intended purpose (see response to comment 2-12).

¹²See Council on Environmental Quality regulations, Sec 1502.21, Incorporation by Reference. "Agencies shall incorporate material into an environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The incorporated material shall be cited in the statement and its content briefly described. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment. Material based on proprietary data which is itself not available for review and comment shall not be incorporated by reference" (Emphases added). Personal communications are not available for inspection or review.

¹³Locations were determined from PTI's Table 1. For example, NE NW 827 T21 R24 is the northeast quarter of the northwest quarter of section 27 of Township 21 North and Range 24 East. I plotted all wells as if they occur at the centroid of their area.

of a partial contour map which suggests much steeper gradient exists to the west. It suggests that the shape of the water table is changing so that assumptions of steady state conditions being reflected by these well levels are incorrect. The map also shows the variation of groundwater elevations in the vicinity of the pumping well and that the lowest elevation of 4009.5 is to the west of the others which seems contradictory.

The DEIS acknowledged the presence of a confined layer, but the discussion is very confusing.

Near the water table, the groundwater system in Dodge Flat is unconfined to semi-confined (PTI, 1997). Coarse-grained materials act as the principle water-bearing materials. More fine-grained materials (silts and clays) within the alluvium result in a confined aquifer at depths of 40-450 ft. A shallow, unconfined aquifer generally occurs along the Truckee River (CH2M-Hill, 1990), although artesian conditions have been observed locally in some areas adjacent to the river (Bratberg 1980). (DEIS, section 3.4.2.2, page 3-15)

BLM provides references for all descriptions but the confined aquifer. Based on well levels in PTI, I agree with all of this description. The groundwater model (PTI) does not describe how this was accommodated. The description of the model domain (PTI, page 11) included discussion of no flow boundaries, but does not describe the number of layers used or the type of layer (confined, unconfined, or a combination).

If the measurements of flow to the Truckee River could be verified (see discussion above), this is a good calibration target. However, there is little confidence in these estimates.

Recharge to the Dodge Flat Aquifer

BLM describes recharge to the Dodge Flat aquifer as occurring "in the Pah Rah Range to the west, where rainfall can reach up to 24 inches per year and from the Truckee River or irrigated areas south of the river" (DEIS, section 3.4.2.2, page 3-17). Figure 3.9 (DEIS, page 3-18) shows 1550 afy of at the base of the mountains and 350 afy of groundwater flow from the Pah Rah Mountains and 5905 afy inflow from upvalley groundwater (presumably from the Truckee River at the southern boundary). PTI (page 9) estimated recharge in the Pah Rah Range to be 1900 afy and "distributed it evenly along the west side of the model domain at the Pah Rah Range front". Later, PTI (page 11) states that the Pah Rah Range front was a "flux boundary". PTI used the MODFLOW code which does not have a package specifically for flux boundaries but has several methods for simulating a boundary as such. We assume they used the recharge to distribute the recharge evenly along the west side of the aquifer. (Note that the DEIS states that production well simulation was considered "[w]ithout accounting for groundwater inflows to Dodge Flat from downvalley transport of groundwater and recharge from the Pah Rah Range and the Truckee River" (DEIS, page 4-10). This is a completely incorrect statement.)

The reviewer correctly assumed that the disparities in recharge or flow values between the DEIS and PTI (1997) are a function of slightly different areas being evaluated. The project area (smallest area) is responsible for 350 acre-ft/year, the cumulative analysis area (i.e., shown as the watershed boundary on Figure 3.4, DEIS at 3-8) for 1,550 acre-ft/year, and the Pah Rah Range north to Dead Ox Wash for 1,900 acre-ft/year (PTI 1997).

This statement should have been edited out of the DEIS following incorporation of the results of PTI (1997). The text has been modified accordingly.

However, Figure 3.9 in the DEIS shows both recharge and groundwater flow summing to 1900 afy which suggests that a combination of recharge and head-dependent boundaries would be more appropriate.

Geology maps suggest that none of the Pah Rah Mountain recharge makes it to the Dodge Flat aquifer. For example, DEIS Figure 3.8 suggests numerous bedrock layers which appear to intrude vertically to the surface. While the conductivity of these layers is probably less than the alluvium, primary flow directions would be along fractures which are most likely vertical. Thus, most of the recharge from the Pah Rah Mountains likely extends deep and does not reach the Dodge Flat aquifer. Because the springs and seeps above the pit are suggested to result from perched water (DEIS, page 3-12), it is possible that much of the estimated recharge in the Pah Rahs never reaches a level from which it could recharge the Dodge Flat aquifer.

Recharge on the west side of the aquifer would likely result from occasional runoff events. JBR¹⁴ estimated annual runoff for Olinghouse, Frank Free, Tiger and White Horse Creek as 140, 30, 100, and 20 afy. Because this surface flow does not reach the Truckee River, a small fraction should be considered as recharge.

Flow to the River in the Model

PTI discusses the flows in the river because pumpage might pull a certain percent of this flow to the well. They refer to mean daily streamflow, which includes averages of high and low flow days and years. They then discuss baseflow as being between 40 and 70 cfs in late summer. The average annual minimum flow is reported as 14.9 cfs. Minimum daily flows have been less than 2 cfs due to irrigation diversions (PTI, page 4). The DEIS only refers to the average daily minimum of 14.9 cfs (DEIS, page 4-10). PTI's report should be expanded to include a low-flow frequency analysis of daily flows at the respective gages. Specifically, the should consider 7-day low flows and determine low flow rates for various return intervals. They should then analyze impacts of the pumpage on this low flow. The DEIS implies that the important impacts are those on threatened and endangered fish species. While drying the river due to pumpage would have a negative impact on any fish still in this reach, it is unlikely that either LCT or cui-ui would be present during late summer. The DEIS does not include analysis of the effects of the reduced flows on growing cottonwood seedlings. A very recent thesis at the University of Nevada, Reno¹⁵ indicated that seedling survival depended very much on the rate of groundwater drawdown. Pumpage occurring during low baseflow conditions could very possibly cause groundwater levels to drop below the seedlings.

¹⁴JBR Environmental Consultants, 1995. Surface Water Baseline Information: Alta Gold Company, Olinghouse Canyon Project, September 21, 1995.

¹⁵John Klotz, 1997.

The 10x vertical exaggeration on Figure 3-8 (DEIS at 3-16) suggests that the rocks are dipping more than they are: in fact, they dip to the west northwest at about 15 degrees (see Figure 3.1 [DEIS at 3-2], which is exaggerated approximately 2x). We would expect flow above the water table to be primarily vertical; however, regional groundwater gradient drives flow more than geology. Therefore, assuming the gradient you described in your comments, there is no reason not to assume that recharge in the Pah Rahs reaches the Dodge Flat alluvial aquifer. Such an assumption is consistent with all prior studies, including that of Brathurg (1980) and Van Denburgh and Arteaga (1985), both of which are cited in the DEIS.

Surface water runoff is treated in this fashion, as noted in footnote 3 of Table 4.2 (DEIS at 4-7). Only 10 acre-ft/year, originating from stormflows, is assumed to reach the Truckee River. Recharge is calculated using the Maxey-Eakin method.

Please refer to the response to comment 1-13. For the reasons described in that response, the frequency of very low flows in past years is not expected to be relevant to conditions occurring during mine operations.

Cottonwood seedling mortality occurs only when the rate of river stage decline in the annual hydrograph exceeds the downward growth rate of their roots. For this reason, the U.S. Watermaster is attempting to regulate operations at Derby Dam to reduce rapid decreases in river flow (and therefore stage), instead replicating the gradual decrease in stage that would happen after snowmelt runoff into the summer under unregulated conditions. As the effect at the river of pumping Alta's well would be constant over time and would reflect only a small portion of the flow, this pumping is not expected to increase the mortality of cottonwood seedlings. The upper bound on the possible change in stage from Alta's well could be calculated assuming that all 356 gpm (0.8 cfs) came from the river. Because the well intercepts recharging water that would reach the river over a several mile-long stretch of channel, flow reductions of this magnitude would be undetectable with the most sensitive water level measuring devices available. Assuming that the reduced recharge of a maximum of 0.8 cfs occurs over a 10 mile reach of a 40-ft wide river, or 2.1 million ft², then the instantaneous stage reduction would be 3.8×10^{-7} ft (or 0.12 microns).

3a-39
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Klotz (1997, personal communication) indicated that he had to discard measurements from many wells because pumpage occurring in production wells up to 500 meters from his sites had large and almost immediate impacts on the well levels. PTI states that "[p]redicted drawdown at the Truckee River is negligible through the simulation period, largely because the pumping rate is not large enough to significantly influence the ... stage, and the river controls groundwater elevations." (PTI, page 15). The reason there is no drawdown is that PTI assumed the river to be a constant head boundary¹⁴. Figure 3 (PTI) shows the river boundary and that many of the cells are quite large, up to 1000 feet square. The head estimates are averages over this distance. Head at the boundary is set by the user and is an average for the entire cell. There is no way this model configuration and boundary condition would allow determination of a drawdown at the river even if one existed. Klotz's observation cited above suggests that coarse averages over cells 1000 feet square do not provide the necessary detail. Because cottonwood seedlings may be affected by drawdown rates that cause several additional centimeters of drawdown, this analysis of impacts on the river is insufficient.

Structure of the Groundwater Model

3a-40
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As mentioned above, PTI does not discuss the number of or types of aquifers used in the model. Figure 2 (PTI), label "Geology of the Dodge Flat area as represented in the groundwater model", shows "tertiary volcanic rocks and other no-flow areas" extending out from the Pah Rah Mountains. This map does not match at all the "Groundwater Model grid and boundary conditions" in Figure 3 which also show no-flow cells. Other figures with groundwater levels show a shape like Figure 3. Also, the description of aquifer properties (PTI, page 8) and as calibrated (PTI, page 13) refer to the materials shown on Figure 2. Unfortunately, the document refers to Quaternary alluvium in the west being assigned a K equal to 22 ft/day, but Figure 2 does not show any of this material in the west. There should be a better map provided which shows conductivity values.

I agree with the choice of the northern boundary. At some point, flow lines from the Pah Rah to the river will not be affected by the project and can be represented as no flow. However, the choice at the river is less clear. Figure 3 shows the river as a constant head boundary and PTI does not provide any other river conductivity parameters. The river should have been modeled with the river package in MODFLOW which is a head-dependent flux boundary. Using the RIVER package, head in the river is set equal to observed levels and flow from the river depends on conductivity and thickness of the river bed and the gradient between adjoining cells and the river cell. A constant head boundary is essentially an unlimited reservoir of water without the flow limiting characteristics of the river bed. The only conductivity control is that of the model

3a-40

Please refer to the response to comment 3a-33 for clarification of the model representation of geology. The document refers to Quaternary alluvium within the model domain, as shown in Figure 2 of PTI (1997). The model as constructed (i.e., without using the RIVER package) was deemed to be adequate for its intended use.

¹⁴ I am uncertain as to the package used in that on page 11, PTI states: "[t]he Truckee River was represented as a constant head boundary in the model. The average elevation of the water in the Truckee River was determined from 1:24000 topographic maps, and each model cell along the east and south sides of the model domain was assigned a head value corresponding to the average river stage at the cell location."

3a-40 cells. Thus, more water can be drawn from a constant head boundary with less drawdown in the aquifer. This minimizes the impacts of the pumping on the aquifer.

Other Wells and Water Rights

3a-41 The DEIS provides a water rights summary at the project site including the Dodge Flat aquifer. Table 3.2 (DEIS, page 3-19) shows a total annual duty of 10,907 *afy* for the area. Based on any estimate, these total rights far exceed recharge. Of the total, there are 9205 *afy* of mining and mineral processing rights with 9179 *afy* of underground rights. The footnote states this includes Alta's approved rights. There are no other extant mines in the area, so why are there rights to so much use? This table should state how much of this water is Alta's and explain why they need so much when the proposed pumpage from the Dodge Flat aquifer is only 560 *afy*. Or are they looking to future developments with much higher production pumpage needs? The large change in water levels mentioned above suggests that current pumpage is mining the aquifer. Even though the State of Nevada regulates groundwater permits, the BLM has a requirement to follow state law, even if the state does not. The BLM's current permitting regulations require that "[a]ll operations...comply with all pertinent Federal and State laws, including but not limited to the following"⁴³ and then goes on to list water quality and state "[a]ll operators shall comply with applicable Federal and State water quality standards..."⁴⁴.

3a-42 Neither the DEIS nor the groundwater model report discusses effects on other wells in the Dodge Flat aquifer. Wells shown on the attached map as well as additional wells fall within the drawdown shown on figures in PTL. The DEIS and groundwater model study should discuss impacts on other water rights. The drawdown caused by pumpage over the past thirty years suggest that substantial impacts are possible. Also, the groundwater model must include pumpage occurring from the existing wells.

Results of the Groundwater Model

3a-42 A primary result of pumping 560 *afy* from this aquifer is that very little water is lost to the Truckee River and Pyramid Lake. This may be correct; even if diverted straight from the river, this is not a large amount compared to existing flows in the river. However, the drawdown near the river may have been decreased by the assumption of boundary conditions at the river. As discussed, the river was modeled as a constant head boundary, but the aquifer to the east of the river is considered to be no-flow. This might eliminate a potential source for flow, except that the constant head boundary is an infinite source without even a conductivity controlling the flow rate. Figures of drawdown for different pumping scenarios show the one and three foot drawdown parallel the river. This seems to draw water from the entire river length (or decrease flow to the river along its entire length).

⁴³ 43 CFR § 3809.2-2

⁴⁴ 43 CFR § 3809.2-2(b).

Water rights in Dodge Flat are apportioned by the State Engineer. Alta's water rights total 1223.956 acre-ft/year from Dodge Flat. Other mining interests, including Nevada Land and Water, have additional rights in this area. To the best of our understanding, no one is currently pumping the aquifer to any degree.

3a-42 Please refer to the response to comment 3a-39.

Assessment of Impacts on Surface Water Resources

3a-43 There are no perennial streams in the area to be affected by this project. "It there is a substantial intermittent stream in Olinghouse Canyon which has been underestimated by project proponents. The surface water reports suggest that only Olinghouse Canyon becomes intermittent well below the project site (247 gpm observed on an undisclosed date, JBRa¹⁹, page 3). The DEIS does not mention these flows. Also, we visited the site on October 31, 1997 and found about 0.375 cfs (1' by 2.5' by 1.5 fms and 168 gpm) flowing in Olinghouse Canyon at the large cottonwoods just below the townsite. This was about three weeks after any substantial rainfall, therefore it was not storm runoff. Evapotranspiration was probably low allowing for more runoff. It suggests that substantial subsurface flow, required for supporting the riparian vegetation and wetlands in the bottom of the canyon, exists in the Olinghouse Canyon. Remarks in the DEIS (page 3-10) that flow in Olinghouse Canyon of 1 to 10 gpm and a personal communication suggesting that these flows were unusual may be misleading to the reader. They imply that this is usually a dry stream, not the substantial riparian and wetland resource observed during our site visit.

3a-44 Representations of stormflow in the DEIS are very confusing. There is a statement that "[t]en, 25-, and 100-year storm peak discharges, based on rainfall runoff modeling, are estimated to be 202, 386, and 564 cfs." (DEIS, page 3-10). There is no indication as to which canyon this flow comes from and the DEIS implies that the flows could be from all of the canyons together. Examination of the series of references dealing with surface flow shows that the highest flow is from the Pond Peak watershed, south of Olinghouse Canyon, with over 100 cfs coming from the facilities. Probably, this is from disturbed areas not including the heap leach pad. In any event, the reporting of stormflows in the DEIS is very inadequate.

3a-45 The DEIS mentions high sediment loads from the existing conditions and references several JBR reports. However, the SEDCAD modeling is only for existing conditions. There is slight discussion of with project impacts in the DEIS, but not in the references. However, there is no systematic comparison of sedimentation before, with and after the project. This should be assessed and a table provided which shows sediment loads without the project and with the project.

BIOLOGICAL RESOURCES

General Comments

The DEIS does outline the potential impacts to biological resources, however the supporting technical documentation, specifically the Wildlife Baseline Report (WBR) does not

¹⁹ JBR Environmental Consultants, 1996. Addendum: Surface Water Baseline Information, Alta Gold Company, Olinghouse Canyon Project. JBR Environmental Consultants, Reno, NV. Hereinafter, JBRa.

3a-43 As stated in this comment, flows in Olinghouse Creek are highly variable. The measurements presented in this comment are substantially larger than any previously observed at the site, including the 20.1 gpm measured at this site in early December using a cutthroat flume. Because flows in the creek are so small, only flume measurements can be considered reliable. In particular, the mean velocity presented in this comment appears to be abnormally high, suggesting that it is an uncorrected estimate of surface velocity from approximate means, rather than from instrumented measurements. Analyses in the DEIS recognize that for a short portion of its length near the original townsite, Olinghouse Creek may be nearly perennial. However, flow in Olinghouse Creek at the project area boundary has been observed only in response to storm events.

3a-44 Thank you for your comment. The context of the quote in your comment was the annual discharge from all watersheds in the project area, so the assumption made by the reviewer is correct. For more detail, the reviewer is directed by citations in the quoted sentence to the appropriate baseline reports.

3a-45 The text of the DEIS describes the predicted marginal increase in soil erosion from the additional disturbance associated with the Proposed Action. These analyses were done specifically for the DEIS. Much of the area (excluding only the process area) is highly disturbed now as a result of historical activities, and therefore would not be subject to additional disturbance from the proposed action. In addition, the pits would quickly intercept sediment from their watersheds, including many acres of disturbed hillslopes. Therefore, because of the small increase in disturbed area, the ephemeral drainage network at the site, and the generally poor precision of sediment modeling under even the best calibrated conditions, it was not deemed useful to run SEDCAD in "with-project" conditions.

- 3a-46 include the information necessary for informed comment on the potential impact of the Proposed Action (JBR 1996e). Most notable is a complete lack of survey methods for wildlife species other than bats which were well covered in the Bat Surveys document (JBR 1995c). Understandably, the DEIS does not need to include methods or censusing techniques. The supporting technical documents, however, should contain this information. It is impossible for the public to fully address the conclusions of the DEIS without being able to refer to either the raw data, or the method of collecting data. It is impossible to discern from the WBR if species, or taxa, specific surveys were conducted or if wildlife observations are simply a by-product of other activities at the site. Additionally, the WBR relies heavily on Personal Communication which is difficult for the public to access. (As a point of notation here, under standard scientific convention, Personal Communication should not be cited in the text the same as a reference article, but instead should be cited as personal communication. A list of personal communication contacts in the appendix should then be included).
- 3a-47 While it is understandably time intensive to conduct broad scale surveys for all potential species present, Alta Mining Company is responsible for presenting the true impact to species listed as Endangered, Threatened, or as Species of Special Concern by either USFWS, NDOW or the BLM. While there are no potential Threatened or Endangered Species on the Project Area, there are, in addition to the eight bat species surveyed for, three species of mammal and seven species of birds listed as Species of Special Concern (Section 3.8.2, p. 3-30). The DEIS reported surveys only for Bat species, and no survey work for the other species was conducted.
- 3a-48 Surveys should also be undertaken, as was the case in this DEIS for neotropical migrants and raptors, two groups of concern because of reported declines. Birds can also serve as an indicator of general biodiversity present at the site.
- Impact to Vegetation and Wetlands
- 3a-49 The Proposed Action will directly disturb 502 acres of native vegetation. All disturbed areas will be reclaimed. We recognize that the proposed seeding mixture is a BLM approved mixture designed to restore native vegetation. However, there should be a formal commitment to use only native species in the seeding mixture. Additionally, as the DEIS acknowledges in section 4.6.1 that "disturbed area and recently revegetated areas are susceptible to invasion by undesired plant species." We recommend a commitment to a monitoring program to insure that recently revegetated areas are not invaded by non-native plant species such as Russian thistle and cheatgrass. This should be part of requirement for release of reclamation bonds. Also, the final EIS should include provisions to prevent livestock grazing of the revegetated area for a minimum of three growing seasons following reseedling. While some of these issues just mentioned are addressed in the DEIS, we are concerned that the language used in section 4.6.4 (p.4-17) is passive. Instead of would and should, we recommend that Alta Mining Company be required with active language (i.e. will) to conduct the listed mitigation and monitoring.
- 3a-46 Please refer to the responses to comments 2-36 and 2-37.
- 3a-47 The status of sensitive wildlife species on the project area is described in the DEIS at 3-30, 31, and 32. This information is the result of wildlife observations by JBR Environmental Consultants, Inc., from published literature, and from consultation with the Nevada Division of Wildlife and the Nevada Natural Heritage Program. BLM believes this information adequate for the purposes of this EIS.
- Regarding personal communications cited as references, please refer to the response to comment 2-37.
- 3a-48 A species list for birds, including neotropical migrants and raptors, was compiled by JBR Environmental Consultants, Inc. and included in their wildlife baseline study. The species observed were typical for the area and type of habitat, and there was no reason to conduct more detailed studies. The DEIS at 4-18 states that no raptors are known to nest in the project area, and that nongame birds would be affected because of habitat disturbance and destruction. It is obvious that any construction activity that disturbs habitat would have some impact on the avian inhabitants. These impacts are difficult--perhaps impossible--to quantify, and are not considered significant when much larger areas of undisturbed habitat occur adjacent to the project. In addition, the disturbance is temporary because postmining lands would again provide avian habitat. Potential nesting habitat for migratory birds that would be proposed for disturbance during the nesting season would be surveyed to determine the occurrence of nests and, if nests are found, disturbance would be delayed until the young birds have left the nest (see DEIS at 4-19, comment 8-20, and Sections 5.5 and 5.6 of this FEIS).
- 3a-49 The Nevada BLM/NDEP Standards for Successful Revegetation and Attachment A describe required monitoring and revegetation standards. These standards are a condition of the Reclamation Permit issued by NDEP and final bond release for revegetation cannot occur before the standards are met. The BLM is committed to control of noxious weeds and has developed mitigation to aid in the control of noxious weeds. Please refer to the mitigation Section 5.4 of this FEIS.

In the summary of impacts (page iii) it is reported that "one small seep in Frank Free Canyon would be disturbed and that no other springs or wetlands are anticipated to be affected by the Proposed Action." There is no further mention of the vegetation associated with this seep and/or any planned mitigation efforts. Additionally, the DEIS reports that the Project Area itself contains 17 seeps/springs. Will there be no impact to any of these wetland resources by the Proposed Action?

Impact to Big Game

Under the Proposed Action the DEIS reports that approximately 502 acres of habitat would be disturbed. However the impact to all wildlife, including big game species, from noise and human activity would actually span a much greater portion of the Project Area since the three major disturbance areas are fairly spread out. The DEIS acknowledges that "some unquantifiable amount of displacement of pronghorn and mule deer would undoubtedly occur" (sec. 4.7.1 p 4-17). The question is whether this level of disturbance is detrimental to the long-term persistence of these populations. The DEIS addressed the potential impact on mule deer migration routes, one of which are found in the Project Area. However, the potential impact of the Proposed Action on pronghorn migration routes or calving grounds is not discussed. Additionally, while there may be a limited presence of Bighorn sheep in the Project Area, the Bighorn sheep population is so small that even a minor impact could effect its long-term persistence. The population in the Pah Rah and Virginia Mountains currently numbers less than 100 individuals and the project area is considered the southern part of their range (section 3.8.2 p.3-30).

Bat Species

The DEIS and supporting documents were very thorough in the survey of bat species in the Project Area, several of which are BLM and USFWS species of special concern. The supporting Bat Survey Report (JBR 1995), describes both the methods and results for census work. In addition, we applaud the Alta Mining Company for making a commitment to reducing the impact of the Project on bat species through bat exclusion mitigation. We would add that in addition to not excluding bats during lactation, bat colonies should not be disturbed during hibernation which ranges from Nov-March. During hibernation bats generally do not have enough stored energy to survive disturbance. We must note, however, that action to remove bats should not be undertaken until official approval for the project is given, especially because several of the species are considered Sensitive. Yet, on page 4-19, section 4.8.1 the DEIS states that "All of the adits and shafts that would be affected by proposed project activities have been cleared of bats and sealed to prevent their re-entry." Why has a project specific action been allowed to occur prior to formal permitting of the mine?

Small and Noongame Mammals

There was not adequate censusing of the Project Area for the pygmy rabbit, and Preble's shrew, both small secretive species unlikely to be detected without species-specific surveys. Since

3a-50 Please refer to the response to comment 1-7.

3a-51 Please refer to the responses to comments 2-39 and 2-40.

3a-52 The only adits and shafts that have been cleared of bats and sealed to prevent bat re-entry are those that were disturbed during exploration activities. These activities were evaluated in the environmental assessment prepared for that activity in 1995 by BLM. The DEIS at 2-20 correctly discusses plans for evacuating bats from occupied shafts and adits during the Olinghouse Mine Project. The text in the DEIS at 4-19 has been corrected to reflect the fact that bat evacuations associated with the Olinghouse Mine Project have not yet taken place.

3a-53 Please refer to the response to comment 3a-47.

3a-53 these species are specifically mentioned in the DEIS as Sensitive Wildlife Species possibly occurring on the site, BLM should require Aka Mining Company to insure that the Proposed Action will not have adverse effects. A first step in such an insurance is adequate inventories, or surveys, of the Project Area, should be conducted for all species currently considered Endangered, Threatened, or Species of Special concern either by the USFWS, NDOW, or the BLM. The listing of organisms as Species of Special Concern is designed, in part, to help prevent incremental destruction of habitat crucial to the species' survival and therefore avoid an eventual listing. It is not possible to prevent habitat destruction if it is unknown whether the species exists on the site. By not surveying, BLM may be allowing incidental take to occur without even knowing it.

Avian Impacts

3a-54 Game Birds: No sagegrouse leks were located in the project area and much of the area may be unsuitable habitat. While it is true that leks are often on traditional sites, new leks, especially small ones, may appear. If a lek is discovered once mining operations have begun a consultation with NDOW should be required to determine the best methods of mitigation. The potential presence of Mountain Quail should be examined more closely, and since this bird is considered an NDOW species of special concern due to declining populations, BLM should require a more intensive survey for this species prior to commencement of the project in order to minimize impacts.

3a-55 Raptors: It appears from the vegetation report, that there is little suitable raptor nesting habitat in the Project Area, except possibly for burrowing owls. However, if raptor nests are found on the site once construction has begun, we recommend a consultation with NDOW for the best ways to minimize disturbance to nesting hawks and/or owls. As for the potential presence of Western Burrowing Owls, an NDOW species of special concern, areas of suitable habitat that are impacted by disturbance should be specifically inventoried.

3a-56 Neotropical Migrants: While the DEIS and the accompanying wildlife Baseline Report (JBR 1995) report that bird surveys were conducted over a two year period, there is no mention in the Baseline Report of the survey methods used or the time of year that surveys were conducted. Detection of certain species can be influenced by the survey method.

The DEIS states that "[a]ny potential nesting habitat for migratory birds that is proposed for disturbance during the nesting season would be surveyed to determine the occurrence of nests. If nests are found, disturbance would be delayed until the you birds have left the nest, unless otherwise authorized by the USFWS" (section 4.7.4 p.4-19). The DEIS should acknowledge that the breeding season for most neotropical migrants in Nevada is April to August, although for certain non-migratory species, such as Raptors or Pinyon Jays, breeding can commence much earlier in the year (January to March).

3a-54 The BLM, in consultation with NDOW, has determined that the Olinghouse area is unsuitable habitat for both sage grouse and Mountain Quail and further surveys and mitigation is unnecessary.

3a-55 NDOW was consulted throughout the EIS process and there is no concern for Western Burrowing Owls in this area.

3a-56 Bird surveys were performed from Fall 1994 through Winter 1996 (Wildlife Baseline Report, Appendix A Species List).

The part of sentence "...unless otherwise authorized by the USFWS," is deleted. The same mitigation would pertain for all species if nests are found.

From the above quoted statement, it appears Alta Mining Company has already been advised by the USFWS that the destruction of the nests, eggs or young of migratory species is a violation of the Migratory Bird Treaty Act (MBTA). We applaud Alta Mining Gold for addressing this issue in the DEIS, however, it is important to caution that locating and avoiding nests prior to disturbance is incredibly difficult, even when a trained ornithologist is present. This is especially true for most of the smaller neotropical migrant species. The DEIS does not specify who will conduct the bird surveys, it should be someone with specific training in nest searching. Additionally, we disagree with the provision "If nests are found." Breeding birds are by nature secretive, and nests are well camouflaged and cryptic. Physically finding the nest is not necessary for determining breeding status. For example, the Nevada Breeding Bird Atlas lists singing males, presence of a pair, and agitated behavior as signs of probable breeding. While confirmed breeding status is conferred when nest building, distraction behavior, carrying food or nesting material, is observed. The wording of the DEIS be amended to reflect this issue and to avoid violation of the MBTA.

Reptiles, Amphibians, and Invertebrates

There was not enough information contained in the DEIS to sufficiently comment on the impact of the Proposed Action.

Cumulative Impacts

While the DEIS states that there would be "no toxic discharges to either the Truckee River or Pyramid Lake because of spill precautions to be taken at the mine and because flows from the project area seldom reach the Truckee River" (emphasis ours), it is important to note that if the worst case scenario occurred and toxic discharge did reach the Truckee it could have potentially devastating consequences to local, regional and global biodiversity. Pyramid Lake, is one of the largest desert lake ecosystems in the Western United States. Most notably it is home to both the Cutthroat Trout and to the entire global population of the Cui-ui. It is also an important nesting site for the American White Pelican (*Pelecanus erythrorhynchos*). Which has declined in numbers from 23 nesting colonies to 5 (Ehrlich et al. 1988 p. 22). Not only should Alta be required to institute every protection to insure that toxics are not released, there should also be a bonded contingency plan established in the case of an accidental spill. Because of the potentially devastating impacts to Pyramid Lake and the Truckee River Ecosystem, the Olinghouse Mining Project should be under close supervision from the BLM and other appropriate agencies to insure that absolutely no toxics are discharged into the environment.

Biologic References

Ehrlich, P.R., Dobkin, D.S. and D. Wheye. 1988. The Birder's Handbook. Simon and Schuster, Inc. New York.

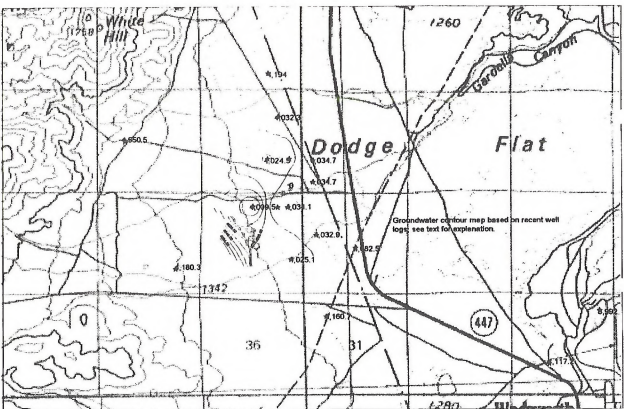
3a-57 Mitigation has been developed to protect nests. Please refer to Section 5.5 of this FEIS.

3a-58 Please refer to the response to comment 2-38.

3a-59 Please refer to the response to comment 1-1.

JBR Environmental Consultants, INC. 1995c. Bat Surveys. Prepared for Alta Gold Company, Olinghouse exploration project, Sparks, Nevada.

JBR Environmental Consultants, INC. 1996c. Wildlife Baseline Report. Prepared for Alta Gold Company, Olinghouse exploration project, Fernley, Nevada.



LETTER 4. GREAT BASIN MINE WATCH



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Carson City Field Office
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Re: Olinghouse Mine Project DEIS

Dear Ms. Knutson:

Thank you for this opportunity to comment on the referenced mine project. Also, please accept comments from Dr. Glenn Miller, submitted on behalf of Great Basin Mine Watch and the Sierra Club, as supplemental to these comments.

We are very disappointed that the BLM did not accept oral testimony at its so-called open houses. We believe this subverts the public involvement process and may actually be contrary to the Council on Environmental Quality's NEPA regulations and standard BLM policy on many similar projects. Many people who might not provide written input would provide oral input. We urge the BLM to extend the public comment period for this EIS and allow oral input.

The BLM appears to be allowing Alta Gold to piecemeal this project. In other words, they are analyzing only the first phase of what will be a much larger project. This mine proposal is just the beginning. The DEIS states that "although the Proposed Action covers a mine life of 5 years, verified reserves are now about twice the quantity on which the Plan of Operations is based". According to the DEIS, Alta has increased their land holding to 9100 acres, far more than the current project (less than 1000 acres). Although I believe the quote in the DEIS for 9100 acres to be in error, Alta does boast on their WEB page that "the expansion resulted from the staking of 140 additional mining claims ... Alta Gold has now secured the mineralized trend in the Olinghouse Mining District, which extends over a distance five- miles long and one-mile wide....It is the company's belief that these reserves may represent only a fraction of a much larger gold reserve contained in the Olinghouse Mining District. ..., which in prior years had significant placer gold production. Seven of the 11 Nevada mining districts which historically have had such production have since been developed into large-lode, gold-producing mines, including Carlin and Battle Mountain. Olinghouse is well on its way to becoming the eighth such district, and we look at this significant land expansion at Olinghouse as being a real coup for our company" (Emphases ours). Future development will deepen the pit increasing the amounts of dewatering manifold since the proposed mine barely reaches the groundwater. Continued and expanded production will

4-1 The open-house format for public meetings meets the requirements of the CEQ regulations (40 CFR 1506.6) and BLM policy.

4-2 Comment noted. See responses to comments 3-1 and 3-3.

4-3 Your comment assumes actions that are not part of the Proposed Action, and therefore cannot be specifically addressed in this EIS. As noted in the response to comment 2-57, total process water use by the mine (including both pit dewatering water and water pumped from the Dodge Flat aquifer) is equivalent to the average annual recharge from the project area alone, or about 20% of the recharge to Dodge Flat from the entire Pah Rah range. Given the amount of storage in the aquifer, and making the reasonable assumption that the rate of water use would not change with mine expansion (only the duration of water use would change), one cannot claim that this mine would dewater the aquifer. This aquifer is not, as the reviewer states, currently a drinking water source for Fernley or Wadsworth; in fact, use of the aquifer for this purpose has not yet been shown to be feasible. Changes in recharge to the Truckee River, and the likelihood of impacts from water use and spills associated with the Proposed Action, are addressed in the DEIS.

4-3 ↓ dewater the Dodge Flat aquifer, a source for the cities of Wadsworth and Fernley, increase the amounts of water recharged from the Truckee River (an overappropriated river) and increase the likelihood of cyanide and other spills into the aquifer and the Truckee River. This will have increasingly negative impacts on the endangered cui-ui fish and threatened Lahontan cutthroat trout.

Potential Contamination

This project presents a significant opportunity for contamination to reach Pyramid Lake and its endangered cui-ui fish. The hazards include, but may not be limited to mercury pollution from the retort evaporated from the site, mercury eroding from previous mine tailings and cyanide spills into Olinghouse Canyon. None of these issues are given more than passing consideration in the DEIS.

4-4 ↓ There will be 0.99 tons/year of mercury retort released to the air (Page 2-22). Much of this will probably settle within a few miles of emission, within the drainage of the Truckee River. BLM should analyze the potential for overland flow erosion moving this mercury to the river and the impacts that it will have on Pyramid Lake. Lake Powell in southern Utah receives 2200 kg/yr (2.4 English tons/yr), partially from natural erosion of Mancos shale and partially from settling of mercury from emissions from the Navajo Generating Station. Fish flesh from Lake Powell has 700 parts/billion of mercury in it. Lake Powell is much larger than Pyramid, averaging about 22,000,000 af. Apparently, loadings of mercury to Pyramid Lake approach those of Lake Powell with much less volume. This may be an unacceptable risk to Pyramid Lake.

4-5 ↓ Olinghouse is a historic mining district. In many such areas, such as the Comstock, mercury was used in processing and is bound in soils around the sites. These soils are subject to erosion; the Carson River below the Comstock has higher mercury levels than any other river in the western United States and fish contaminated to the point that there is no safe level of human consumption. The BLM should examine for the presence of mercury, and other heavy metals, in soils near the project site that will be disturbed and lead to erosion and sediment reaching the Truckee River. Pyramid Lake should not end up like Lake Lahontan, the reservoir on the Carson River.

4-6 ↓ The leach ponds will be constructed in a canyon south of Olinghouse Canyon. There is no analysis of stormflows presented in the DEIS, therefore, the public cannot assess the adequacy of the design the drainage ditches, leach ponds and storm event pond. The ponds hold a very toxic runoff and the consequences of failure are quite high. If a 25-year storm causes failure, there is a 21.9 percent chance of failure in a seven year project life (mining plus processing life).

4-7 ↓ The DEIS indicates that most spills would not flow fir down the canyon because it is normally dry. The problem with this argument is that failure is most likely during heavy rain (T>25 years) which would probably cause surface flow in the canyon to the river or at least well onto Dodge Flat where it would infiltrate and carry contaminated recharge to the aquifer. There

4-4 Please refer to the responses to comments 1-1, 1-27, and 2-45.

4-5 Please refer to the response to comment 2-47.

4-6 The DEIS at 2-14 and 2-15 includes a discussion (and Table 2.3) that provides the magnitude of discharges during 24-hour 100-year events. Table 2.4 (DEIS at 2-14) demonstrates that the stormwater channels are designed to accommodate these flows.

Also, please refer to the responses to comments 1-1, 1-27, and 2-45.

4-7 Please refer to the response to comment 1-1.

4-7 ↓ is a substantial drainage above the site and channel below the site, indicating that flow does occur. The channel then intersects with the Olinghouse Canyon which would also be flowing heavily. The BLM should add an analysis of the opportunity for transport of contaminated heap leach material across Dodge Flat to the river and infiltrating into the aquifer.

4-8 ↓ The DEIS ignores the prevalence of earthquakes in the area. The UNR Seismological Lab indicates that Olinghouse was the epicenter of a 6.4 Richter scale earthquake in 1882. Most of western Nevada is at substantial risk of earthquake caused failure of heap leach ponds. While it is difficult to argue that an earthquake would coincide with rainfall, it is apparent that the BLM is neglecting the potential for serious contamination of the aquifer, Truckee River and Pyramid Lake due to heap leach failures.

Water Resources

There are two major concerns about this mine project on the quantity of water resources of the south end of the Pah Rah Mountains, the Dodge Flat aquifer, and the Truckee River. These are dewatering and formation of a pit lake at the mine site and drawdown and instream flow effects of the production well proposed near the Truckee River in the Dodge Flat aquifer. However, the DEIS disappointed us in that it provides no discussion or figures of the models used for analysis. In dozens of previous DEISs that we have reviewed that relied on model results, there were at least brief descriptions of the model and maps showing results. This DEIS inappropriately lacks these descriptions.

4-9 ↓ The hydrogeology of the pit lake was poorly modeled such that we have no confidence in the predictions of inflow to the pit, dewatering rates and contamination. The most detailed comments were provided in a report to the Northern Nevada Building Trades Council which will be submitted with their comments on the mine. The basic problem was the characterization of the area is too simplistic and the boundary conditions did not reflect reality. The vertical model assumed an aquifer thickness that included a portion of the aquifer well below the pit into which there were no wells. Basically, the model was little more than a guess.

Similar problems exist with the modeling of the production well in the Dodge Flat aquifer. Problems include the improper modeling of recharge on the west side, improper consideration of boundary conditions at the river, improper calibration techniques, and no analysis of current or future water development projects. Again, see my review attached to the comments of the Northern Nevada Building Trades Council for detail.

4-10 ↓ Recharge in the mountains was improperly treated as recharge spread evenly along the west side of the model. If the recharge estimates are correct and if that water actually reaches the Dodge Flat aquifer, it would do so many hundreds of feet below the surface. The model, as best could be determined from the technical documentation, used only one layer; an appropriate structure would have had at least two layers with recharge treated as a general head boundary on the west side of a deeper layer. The river was a constant head boundary with no flow on the

4-9 Please refer to the response to comment 3a-25.

4-10 Please refer to the responses to comments 3a-32 through 3a-45 regarding your review attached to the Nevada Building Trades Council letter. BLM disagrees that the model in PTI (1997) was improper for the intended use, the magnitude of expected impacts, or the quality of available data. The groundwater model structure you propose assumes a scale of mining impacts such as that seen in the largest Carlin Trend mines (resulting, for instance, in projected pit lakes that are several hundred times larger than the one proposed for the Olinghouse mine). The magnitude of the Proposed Action does not justify this level of effort. We also disagree that recharge from the Pah Rahs would occur below the model domain, as the model assumed the bedrock/alluvium contact to be up to 1,000 ft below ground surface. (Note, however, that if recharge occurs so deeply, it is even more unlikely that pit dewatering would have any effect on the Dodge Flat aquifer.) Finally, the well you saw being drilled during your site visit was Alta's production well. Alta has no other wells on Dodge Flat.

4-11 Please refer to the response to comment 2-36.

4-12 Please refer to the response to comment 3A-47.

4-11 other side. The cell size is so large at the river that potential drawdown in near-river aquifers cannot be assessed. The constant head boundary prevents any drawdown from occurring in the river. The Dodge Flat aquifer was calibrated to steady conditions represented by average initial water levels in several new wells. The level in these wells ranged several tens of feet and averaging removed this variability. Also, the initial water levels may not represent static but rather transient conditions because levels of other wells in the vicinity have dropped many feet from their original static levels. This suggests that the aquifer is slowly being dewatered. Finally, the Dodge Flat aquifer, in its results run, did not consider the pumping of any wells other than the production well. In a site visit on November 8, there was a new well being drilled just 1/4 mile from the production well. What will be the combined effects of all wells in the aquifer?

Biological Resources

4-11 The DEIS does outline the potential impacts to biological resources, however the supporting technical documentation, specifically the Wildlife Baseline Report (WBR)¹ does not include the information necessary for informed comment on the potential impact of the Proposed Action (JBR 1996e). Most notable is a complete lack of survey methods for wildlife species other than bats which were well covered in the Bat Surveys document (JBR 1995e). It is impossible for the public to fully address the conclusions of the DEIS without being able to refer to either the raw data, or the method of collecting data. It is impossible to discern if species, or taxa, specific surveys were conducted or if wildlife observations are simply a by-product of other activities at the site. Additionally, the documents rely heavily on Personal Communication which is difficult for the public to access and potentially illegal².

4-12 While it is time intensive to conduct broad scale surveys for all potential species present, BLM is responsible for presenting the true impact to species listed as Endangered, Threatened, or as Species of Special Concern by either USFWS, NDOW or the BLM. While there are no potential Threatened or Endangered Species on the Project Area, there are, in addition to the eight bat species surveyed for, three species of mammal and seven species of birds listed as Species of Special Concern (Section 3.8.2, p. 3-30). The DEIS reported surveys only for Bat species, and no survey work for the other species was conducted.

¹ References in this section are to: Erlich, P.R., Dobkin, D.S. and D. Wheye, 1988. The Birders Handbook. Simon and Schuster, Inc. New York. JBR Environmental Consultants, INC. 1995e. Bat Surveys. Prepared for Alta Gold Company Olinghouse exploration project, Sparks, Nevada. JBR Environmental Consultants, INC. 1996e. Wildlife Baseline Report. Prepared for Alta Gold Company, Olinghouse exploration project, Forney, Nevada.

² See Council on Environmental Quality regulations, See 1502.21, Incorporation by Reference. "Agencies shall incorporate material into an environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The incorporated material shall be cited in the statement and its content briefly described. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment. Material based on proprietary data which is itself not available for review and comment shall not be incorporated by reference" (Emphases added). Personal communications are not available for inspection or review.

4-13 Please refer to the response to comment 2-39 and 2-40.

4-13

Under the Proposed Action the DEIS reports that approximately 502 acres of habitat would be disturbed. However the impact to all wildlife, including big game species, from noise and human activity would actually span a much greater portion of the Project Area since the three major disturbance areas are fairly spread out. The DEIS acknowledges that "some unquantifiable amount of displacement of pronghorn and mule deer would undoubtedly occur" (sec. 4.7.1 p 4-17). The question is whether this level of disturbance is detrimental to the long-term persistence of these populations. The DEIS addressed the potential impact on mule deer migration routes, none of which are found in the Project Area. However, the potential impact of the Proposed Action on pronghorn migration routes or calving grounds is not discussed. Additionally, while there may be a limited presence of Bighorn sheep in the Project Area, the Bighorn sheep population is so small that even a minor impact could effect its long-term persistence. The population in the Pah Rah and Virginia Mountains currently numbers less than 100 individuals and the project area is considered the southern part of their range (section 3.8.2 p.3-30).

4-14 Please refer to the response to comment 3a-52.

4-15 Please refer to the response to comment 3a-47.

4-16 Please refer to the response to comment 3a-48.

4-14

The DEIS and supporting documents were very thorough in the survey of bat species in the Project Area, several of which are BLM and USFWS species of special concern. The supporting Bat Survey Report (JBR 1995), describes both the methods and results for census work. We add that in addition to not excluding bats during lactation, bat colonies should not be disturbed during hibernation which ranges from Nov-March. During hibernation bats generally do not have enough stored energy to survive disturbance. We must note, however, that action to remove bats should not be undertaken until official approval for the project is given, especially because several of the species are considered Sensitive. Yet, on page 4-19, section 4.8.1 the DEIS states that "All of the adits and shafts what would be affected by proposed project activities have been cleared of bats and sealed to prevent their re-entry." Why has a project specific action been allowed to occur prior to formal permitting of the mine?

4-15

There was not adequate censusing of the Project Area for the pygmy rabbit, and Preble's shrew, both small secretive species unlikely to be detected without species-specific surveys. Since these species are specifically mentioned in the DEIS as Sensitive Wildlife Species possibly occurring on the site, BLM should require Alta Mining Company to insure that the Proposed Action will not have adverse effects. A first step in such an insurance is adequate inventories, or surveys, of the Project Area, should be conducted for all species currently considered Endangered, Threatened, or Species of Special concern either by the USFWS, NDOW, or the BLM. The listing of organisms as Species of Special Concern is designed, in part, to help prevent incremental destruction of habitat crucial to the species' survival and therefore avoid an eventual listing. It is not possible to prevent habitat destruction if it is unknown whether the species exists on the site. By not surveying, BLM may be allowing incidental take to occur without even knowing it.

4-16

While the DEIS and the accompanying wildlife Baseline Report (JBR 1995) report that bird surveys were conducted over a two year period, there is no mention in the Baseline Report of the survey methods used or the time of year that surveys were conducted. Detection of certain species can be influenced by the survey method. The DEIS states that "[a]ny potential nesting

4-16 habitat for migratory birds that is proposed for disturbance during the nesting season would be surveyed to determine the occurrence of nests. If nests are found, disturbance would be delayed until the you birds have left the nest, unless otherwise authorized by the USFWS" (section 4.7.4 p.4-19). The DEIS should acknowledge that the breeding season for most neotropical migrants in Nevada is April to August, although for certain non-migratory species, such as Raptors or Pinyon Jays, breeding can commence much earlier in the year (January to March).

4-18

Please refer to the response to comment 2-64.

4-19

Please refer to the response to comment 2-62.

4-17 From the above quoted statement, it appears Alta Mining Company has already been advised by the USFWS that the destruction of the nests, eggs or young of migratory species is a violation of the Migratory Bird Treaty Act (MBTA). We applaud Alta Mining Gold for addressing this issue in the DEIS, however, it is important to caution that locating and avoiding nests prior to disturbance is incredibly difficult, even when a trained ornithologist is present. This is especially true for most of the smaller neotropical migrant species. The DEIS does not specify who will conduct the bird surveys, it should be someone with specific training in nest searching. Additionally, we disagree with the provision "If nests are found." Breeding birds are by nature secretive, and nests are well camouflaged and cryptic. Physically finding the nest is not necessary for determining breeding status. For example, the Nevada Breeding Bird Atlas lists singing males, presence of a pair, and agitated behavior as signs of probable breeding. While confirmed breeding status is conferred when nest building, distraction behavior, carrying food or nesting material, is observed. The wording of the DEIS be amended to reflect this issue and to avoid violation of the MBTA.

Reclamation and Bonding

4-18 Reclamation of the site may fail. The list of project alternatives includes discussion of soils and acknowledges that the soil may be insufficient for reclamation. "By salvaging growth medium wherever practical within the disturbance area, sufficient soil material may be stockpiled to enable re-application on most disturbed areas to a depth of 5 to 22 inches" (DEIS, page iii, emphasis ours). BLM seems to acknowledge that they do not know how much of the area can be reclaimed because of the paucity of soil recovery. On DEIS page 4-14 and Table 4.4, BLM estimates a range of 269,200 to 1,182,900 yd³ of plant growth material will be available for salvage. This estimate is so wide as to be useless (not to mention the BLM's use of five significant figures when the thickness of soil is estimated to one significant figure). BLM also estimates that soil fertility and structure will be lost during salvage (DEIS, page 4-13). How is it possible to plan for reclamation when estimates of the available soil are so wide? How can the public have any confidence that this site will be reclaimed?

4-19 BLM does not adequately analyze pit reclamation because they claim it is too expensive. The appropriate regulations (43 CFR § 3809) do not require the BLM to consider costs. At no point is economic viability of the project to be the BLM's concern. If the company cannot afford to comply with environmental regulations and reclamation, it cannot afford to mine the site and it no longer has a claim. The 1872 Mining Law requires a validity test to determine whether a site can be economically mined. If regulations make a project unprofitable, the claim is no longer

valid. There is also a concern expressed that backfill will cover future mining potential. This is circular reasoning in that this DEIS analyzes a project that will end when the pit is 500 feet deep. If there are deeper resources, analyze them in this DEIS.

Partial backfilling in this case is quite viable. There will be two pits excavated; clearly, the plan could complete the smaller pit and move waste rock from the second pit into the first pit. Even if the wall separating the pits is eventually excavated, there should be no difficulty backfilling the first pit. BLM should analyze this alternative.

The Proposed Action will directly disturb 502 acres of native vegetation. The proposed seeding mixture is a BLM approved mixture designed to restore native vegetation, however, there should be a formal commitment to use only native species in the seeding mixture. Additionally, the DEIS acknowledges in section 4.6.1 that "disturbed area and recently revegetated areas are susceptible to invasion by undesired plant species." We recommend a commitment to a monitoring program to insure that recently revegetated areas are not invaded by non-native plant species such as Russian thistle and cheatgrass. This should be part of requirement for release of reclamation bonds. Also, the final EIS should include provisions to prevent livestock grazing of the revegetated area for a minimum of three growing seasons following reseeding.

Based on publicly available information (Alta's press releases and financial statements on the WEB), we have concerns about the ability of the company to clean up the site after mining. Quoting from publically available information, "As of September 30, 1997, the Company had \$3,628,000 in working capital, a \$6,262,000 improvement from the December 31, 1996 working capital deficit of \$2,634,000. The increase in working capital was due to: (1) the issuance of \$10,000,000 in convertible debt, (2) the receipt of \$6,000,000 from an \$8,500,000 credit facility and (3) funds generated from gold production at Kinsley. The Company believes that gold production from Kinsley and the \$2,500,000 that is remaining under the \$8,500,000 credit facility will provide adequate liquidity for the Company's operational needs during the remainder of 1997. The Company also believes that gold production from Kinsley and Griffon will provide adequate liquidity for the Company's operational needs throughout 1998. The ability of the Company to satisfy the cash requirements of its operations, however, will be dependent upon the future performance of Kinsley and Griffon which will continue to be influenced by factors which are beyond the control of the Company. Additional financing will be required to begin site development and construction at Olinghouse. The Company anticipates that these additional funds will be obtained through equipment and project financing, although no assurance can be made that such funds will be available or on terms acceptable to the Company." (Alta's Statement of Liquidity and Capital Resources, Sept. 30, 1997). During the first nine months of 1997, the Company expended \$5,088,000 for deferred mine development costs, principally for the permitting and development of Olinghouse and Griffon and the permitting of Copper Flat, and \$3,388,000 for site facilities and equipment, principally for Griffon. During the same period, the Company (1) received \$18,274,000 in debt financing, including \$10,000,000 from the issuance of convertible debt, \$6,000,000 from an \$8,500,000 credit facility, \$1,400,000 from a short-term bank loan and \$874,000 from equipment financing; (2) received \$185,000 from exercised stock

4-21

The bond is required to be in place prior to approval of the plan of operations and must cover 100% of reclamation costs. See response 2-65.

options; and (3) retired \$6,083,000 of debt. On April 10, 1997, the Company entered into a credit facility with Gerald Metals and BHF Bank to borrow up to \$8,500,000. The Company used approximately \$4,700,000 of the loan to repay certain indebtedness due to Gerald Metals. The remaining funds are to be used for the construction of Griffin, working capital and the payment of certain expenses. Borrowings from the credit facility accrue interest at LIBOR plus two percent. Interest is payable monthly and principal is payable in fifteen equal monthly installments commencing on January 31, 1998. The credit facility is secured by a first priority mortgage on Kinsley and Griffin, and a first priority security interest in all of the Company's tangible and intangible personal property." (Alta's Investing and Financing Activities statement, Sept. 30, 1997). We quote extensively from the company's press releases and financial statements to illustrate that we question its ability to reclaim the site. It appears that the company is in debt for existing operations and will go further in debt to capitalize Olinghouse (\$16,800,000 in the first year, Table 2.2). BLM must consider the company's ability to reclaim the site when setting the reclamation bond. The bond should include money to clean up spills and contamination of the Dodge Flat aquifer, sediment generated from the site, and revegetation of the poor soils on the site.

We recommend the BLM to complete a supplement DEIS which adequately analyzes the impacts of this project and the future expansions that will occur. There is sufficient uncertainty in the analysis to warrant further investigation. There is sufficient certainty that additional resources will result in this being just the first phase of a many phased project to warrant investigation of the complete project.

Thank you for considering our comments. Please send us a copy of the supplemental or final EIS.

Sincerely,



Tom Myers, Ph.D.

LETTER 5, THE TOIYABE CHAPTER OF THE SIERRA CLUB



The Toiyabe Chapter of the Sierra Club

Nevada and Eastern California
PO Box 8096, Reno, NV 89507

One Earth,
One Chance.

Nov. 14, 1997

Bureau of Land Management
Carson City Field Office
Attn: Terri Knutson, EIS Project Manager
5665 Morgan Mill Road
Carson City, NV 89701

Re: Olinghouse Mine Project Draft EIS

Dear Ms. Knutson:

These comments are submitted on behalf of the Toiyabe Chapter of the Sierra Club and Great Basin Mine Watch. Previous comments have been submitted on this draft EIS and these should be considered supplementary comments.

1. This project has the potential for a substantial impact on Native Americans. As such, this project requires detailed consideration of those interests due to the special relationship between the Bureau of Land Management, a U.S. federal agency, and the Pyramid Lake Paiute Tribe. For some of the impact analysis presented below, it is reasonably clear that the BLM is delegating its responsibility to protect Native American values to an agency of the State of Nevada. The BLM is allowing the state to prescribe drainage water quality standard from decommissioned heaps. It also is using at least on method (Meteoric Water Mobility Test) for assessing water quality impacts that has never been accepted as a valid method for predicting water quality impacts by any federal agency. In each case, the BLM should clearly state what water quality standards will be allowed, as well as require utilization of accepted methods for assessing drainage water quality. Although the BLM cannot permit violations of Nevada state regulations, the agency must also recognize its responsibility to protect the interests of the Native American community.

2. This EIS is uncommonly brief and contains only a very general discussion of critically important issues. This is the first EIS in recent years which effectively contains no water quality data. Unless the reviewer has access to the background reports, the EIS is not sufficient for the public to assess the impacts of this project on water quality. The public is thus required to accept the assertions of the EIS writers, without available supporting data. I was able to review one of the studies (Water and Chemistry Mass Balance etc.), and was surprised that only a very vague discussion of

5-1 Please refer to the response to comment 2-66.

5-2 The Meteoric Water Mobility Procedure (MWMP) testing was used to indicate the potential for dissolution and mobility of certain constituents from a sample by meteoric water (SMI Baseline Report, Appendix G, page 5). The results of these tests were used only to indicate if a potential problem existed, and not for predictive purposes such as pit lake modeling. In general, the use of MWMP testing would provide higher concentrations than kinetic testing, because the MWMP test determines concentrations in the "first flush." This first flush generally produces higher concentrations of constituents than does extended leaching with successive amounts of water as used in kinetic testing. Thus, using the MWMP results in evaluating potential seepage from waste rock provides a conservative, worst-case analysis. Both kinetic testing and the MWMP results indicate that concentrations of constituents would generally be within Nevada drinking water standards, so the impact of using the MWMP results is negligible.

5-3 Please refer to the response to comment 2-66.

5-4 Comment noted.

4-104

Olinghouse Mine Project Final EIS

5-4

this study was included in the EIS. None of the critical water quality data were included in the EIS. The EIS should be rewritten to include sufficient information that a member of the public could assess the impact of this mine, without specifically obtaining the background reports.

6-5

3. The Meteoric Water Mobility Procedure is referenced in several sections of the draft EIS (i.e. 2-19, 3-15, 4-8, 4-10). When has this procedure ever been validated for prediction of drainage from waste rock. How is the BLM using this procedure to assess whether waste rock (second paragraph on 4-10) will contaminate groundwater? If fact, this test has never undergone any validation, although it is my understanding that the mining industry has succeeded in getting it established as an ASTM procedure. The ASTM process does no more than provide an agreement of "how" the test will be conducted. The ASTM does not certify that the test is meaningful, only consistent. The meteoric water mobility procedure is no more than rock washing tests. It does not consider longer term oxidations or sorption processes, which ultimately may be the dominant factor in potential groundwater contamination. This is a test suggested by the State of Nevada, and I do not feel that any federal water quality agency would ever certify that this test will provide predictive results. In this case, the BLM is using an unvalidated test proposed by a state agency to protect water resources which connect to Native American lands. In its response to this comment, I request that the BLM provide a study which demonstrates that this test is meaningful for predicting drainage water quality from waste rock types found at this mine.

5-6

5-7

4. The issue of pit lake water quality and movement of that water out of the pit is important due to the Nevada regulation which prohibits formation of a pit lake which has the potential to degrade groundwater. Which groundwater sample(s) should be used for comparison. This EIS compares the pit lake water quality with groundwater that was taken from wells in highly disturbed areas within the pit boundary. This water was very likely contaminated by historic mining, and does not represent water which potentially can be contaminated. In order to protect groundwater and downgradient people, the comparison should be made between the predicted pit lake water quality and water from wells located in areas *undisturbed* by mining. It is highly inappropriate to use background wells that are situated directly within the pit area where extensive mining activity has occurred. If the only data available are presented in Table 2 (Water and Chemistry Mass Balance, etc.), then the background groundwater quality should be based on an undisturbed site (PW-01) or the water quality in the most upgradient well (MW-01) near the pit area. These wells contain water which does not violate any primary or secondary water quality standards, while the wells which appear to have been affected by historic mining (high sulfate and TDS) contain water which violates secondary water quality standards. If one uses the better quality wells as background water quality, then the pit lake predicted water quality (corrected from the errors discussed below to 900 mg/L maximum TDS), will almost certainly result in degradation of down gradient water since it will not meet secondary water quality standards. While the water may still meet primary drinking water quality standards, the water will still be degraded below a set of established standards. The

5-5

Please refer to the response to comments 2-24 and 5-2. The waste rock from the proposed pits is oxide ore. The MWMP test flushes water over the rock under oxidizing conditions in an attempt to simulate natural weathering and is, therefore, the only appropriate test for determining what constituents would be released from waste rock. Constituents released in the MWMP test are commonly associated with soluble minerals (e.g., gypsum). Results of this test, presented in Appendix G of the SM1 Baseline Report, show low concentrations of most trace metal constituents, and non-detectable concentrations of constituents not strongly controlled by adsorption (i.e., arsenic, antimony, and selenium). Sulfate and TDS are both naturally elevated above water quality criteria in groundwater (MW-3, and MW-6), in the small seep in Frank Free Canyon (as described in the SM1 Baseline Report and the DEIS at pages 3-10 and 3-15), and in the deeper waters of the Dodge Flat alluvial aquifer (e.g., Cummings 1997d). These results, when coupled with controls on infiltration of water into the waste rock pile and the evaporation pond downslope from the waste rock pile, are used to determine that groundwater will not be degraded relative to background conditions.

5-6

Please refer to the response to comments 2-24, 5-2, and 5-5. Because the waste rock is already 99% oxidized, further oxidation will not release constituents not already observed in the MWMP test. Sorption processes control the concentration of most trace elements which are of concern in the environment, with the exception of those elements listed in response to comment 5-5 above (Drever 1982). Because there is so little acid-generating capacity in the bulk waste rock, there will effectively be an insignificant mass of trace elements released, and ample opportunity for adsorption within the waste rock pile, serving to reduce the concentration of these constituents in pore waters. While the MWMP test is an approximation of actual field conditions, the BLM and the State of Nevada (the regulating agency) both believe that it provides the best prediction of solute concentrations that could be generated in runoff.

5-7

The wells selected for determining baseline concentrations in the proposed pit area are appropriate. There is no evidence that historic mining activities have affected groundwater in this area because the historic workings do not intersect the water table, and there is no evidence of water of poor quality seeping from existing waste rock dumps. The TDS and sulfate concentrations observed in wells MW-03, MW-04, and MW-06 occur in the proposed pit area because of the naturally occurring mineralization. Higher sulfate and TDS concentrations in groundwater and surface water associated with undisturbed mineralized zones are well documented (Runnells et al. 1992; Kelley and Taylor 1997). It is unrealistic to use only water samples from unmineralized areas, because these values would be much lower than the natural background values in the mineralized zone.

5-7

data from the five wells is clearly incomplete, but using the wells located in the disturbed pit area as the background groundwater quality is clearly deferring to the mining proponent, rather than protecting the interests of the Native American community and others downgradient from the mine.

5.

Also, there appears to be a serious problem with the water quality data in Table 2 of (Water and Chemistry Mass Balance, etc.). The 3-13-97 sample of MW-03 contains TDS concentrations which are seriously elevated, compared to water samples taken from the same wells one month before and one month after those samples. In this sample (MW-03), the TDS is 936 mg/L on 2-9-97, 1428 mg/L on 3-13-97 and back to 900 mg/L in 4-17-97. This alone is unlikely, since 50% changes in groundwater TDS in one month are rare. In addition, the major contributors to TDS (sulfate, calcium, alkalinity (carbonate species), magnesium, sodium and silica) do not change appreciably during the same three months. Thus, the TDS value is almost certainly incorrect for MW-03 for 3-13-97. Additionally, the TDS for Well MW-04 similarly varies during those months, while the major contributors to TDS do not vary. Finally, that entire sample set taken from all of the wells on 3-14-97 contains several references to holding time problems as well as contaminated laboratory and field blanks, and appears to be sufficiently flawed that the data obtained from samples collected on that date should not be used to make any comparisons.

5-8

5-9

5-10

On page 3-15 the EIS notes the high value of 1428 mg/L for TDS in groundwater, which will need to be changed, or at least re-evaluated. The pit lake calculation will also need to be redone with respect to TDS, since it appears that the consultant used this high value for the pitlake prediction. I disagree with the conceptual model they used for pit lake calculations, since they appear to have ignored the reactions that will almost certainly occur when air replaces groundwater during dewatering. When the pit lake fills, the recovering cone of depression will flush those oxidation products into the pit lake. In this regard, the model is *not* conservative and probably underestimates the TDS and sulfate loading in the pit lake. While I agree that acidification is highly unlikely, there is clearly a major source of sulfate (either sulfate or oxidizable sulfides) near the ore body. It is likely that sulfate and calcium concentrations will be sufficient to result in gypsum precipitation in the pit lake. If this occurs it will clearly violate both TDS and sulfate secondary water quality standards and almost certainly constitute a degradation of groundwater and violate state law. The statement on page 4-10 that groundwater quality would not be degraded by the pit lake is merely an unsupported assertion, since they are basing this statement on three closely placed wells in the disturbed area.

5-11

We may argue about pit lake models and which conceptual model is correct; however, the BLM needs to clearly define the background water quality. The BLM also needs to define for this project "potential to degrade". With the limited amount of data available, the "potential to degrade" definition almost certainly should consider only the two better quality wells. Thus, if the pit lake water quality violates secondary standards and moves out of the pit, it cannot be allowed to form, since it

5-8

The unexpectedly high TDS values in the March 1997 samples from wells MW-03 and MW-04 were noted in the SMI Baseline Report (Appendix F, page 29) as probably being anomalous. However, using the quality assurance/quality control (QA/QC) evaluation criteria, these results could not be eliminated from consideration. Appropriate QA/QC procedures must be followed to ensure that the data are consistently evaluated. Rejecting these data for reasons inconsistent with the QA/QC procedures would introduce inconsistency and, in this case, a non-conservative bias in the data.

5-9

The pit lake calculation could also be performed with lower TDS values (by omitting the March 1997 data from MW-03). However, the results of this revised pit lake calculation would indicate even better quality water. Because the current calculation is conservative and does not show a potential for degradation of the groundwater, there is no logical reason to repeat the calculation.

5-10

This comment alleges a large source of sulfate near the ore body and that large amounts of sulfate would be introduced into the proposed pit and groundwater because of oxidation of the pit wall rock. Further, this comment alleges that gypsum precipitation would occur in the pit lake and that TDS and sulfate secondary standards would be violated. The following information refutes these allegations.

- 1) There is no evidence of a large source of sulfate that would affect the pit water quality. Kinetic testing of wall rock samples indicates that sulfate released from the wall rock, even under conditions of extreme weathering, would quickly fall below the analytical detection limits (<1 mg/L) for all rock types except the fracture zone sulfide/high clay. Even in the sample of this rock type, the maximum sulfate concentration observed, 170 mg/L, is below the secondary drinking water standard without taking into account the effects of dilution by lower-sulfate waters. The static testing data clearly indicate that these rocks do not contain significant quantities of sulfur-bearing minerals. Somewhat higher TDS and sulfate were observed in some wells (MW-01, MW-03, and MW-06), but geochemical modeling (PHREEQC) of the groundwater sample from MW-03 obtained on February 9, 1997 indicates that these sulfate concentrations are too low to be consistent with gypsum saturation. Therefore, although small amounts of sulfate may be released by the pit wall rocks, there is no evidence of a large source of sulfate in this area.

5-11

constitutes a violation of Nevada regulations.

5-12

6. On page 4-11 the draft EIS indicates that "A new monitoring well should be installed downgradient of the ultimate pit footprint." When will this well be established? Or, is this only a request? It would seem that 2-3 wells should be required for a more reliable assessment of the existing groundwater, located appropriate distances from the disturbed area. These need to be constructed and monitored prior to resumption of mining. The remainder of monitoring measures presented on page 4-11 appear as suggestions only and should be restated as requirements in the record of decision. If not, they will be ignored.

5-13

7. The statement on page 4-10 that waste rock dumps are not expected to affect groundwater quality is similarly unsupported. While acidification is unlikely, the presence of high TDS and sulfate in the present disturbed area is evidence that additional disturbance, or waste rock dumps will release TDS constituents into the groundwater. It would appear that a groundwater monitoring well located downgradient from the waste rock dump could actually provide some data on this point. Additional groundwater monitoring wells located on the perimeter of the project would provide much better information on the evolving water quality of the total project.

5-14

8. Heap closure is completely dismissed as a state permitting issue. This is probably the most important long-term discharge problem on the site. The paragraph on page 2-19 which discusses heap closure is entirely superficial. The statement that "The rinse solution would be circulated through the process carbon columns to remove residual metals in the rinse solutions. . ." assumes that carbon columns will remove all metals. While this statement is true for gold and silver cyanide complexes, it is not going to work for a variety of other metals and salts. Thus, the heap is very likely to contain very large amounts of residual contaminants. By the language expressed in the draft EIS, the BLM is dismissing this long-term contamination source as significant. It is becoming increasingly apparent that drainage from heaps is poorly understood and plans for dealing with this discharge are vague promises.

These constituents will be released during the decades from meteoric water passes through the heaps. With a annual precipitation rate of 12 inches per year, water will pass through the dry portion of the heap (upper 10-100 cm) and intercept the capillary waters which will remain from year to year. Flows from the heap will pass through the same system that existed during precious metals extraction. The water will almost certainly be contaminated and present a very long term problem for dealing with those fluids.

The mining proponent has the responsibility to control release of contaminants from the heaps. The solution to this problem, from a regulatory perspective, is relatively straight forward. The BLM should simply require the mining proponent to meet a set of criteria for discharge water before any final bond will be released. This is

- 2) The constituent concentrations predicted in the pit lake are extremely conservative because the mass balance model does not include the effects of removing constituents from solution by precipitation or adsorption. If a model such as PHREEQC is used to simulate reactions such as gypsum precipitation (which is unlikely, given the low sulfate concentrations in the groundwater and kinetic test leachates), the predicted constituent concentrations would be lower than the values currently predicted.
- 3) The current pit lake model uses the kinetic testing data from the early stages of the tests, when concentrations were highest. The current model is extremely conservative because the lower concentration data from the last portions of the test were not included; therefore, the model does not take into account the flushing of the weathered wall rocks with time, which would tend to decrease the concentrations in wall rock leachates.
- 4) Little oxidation of the wall rock is likely to occur because the vast majority of the wall rock is already oxidized, as indicated by the positive acid-base accounting (ABA) data.
- 5) The cone of depression is accurately accounted for in the model by including the flushing of constituents from the seepage face using the kinetic testing data.

In summary, the determination that groundwater quality would not be degraded by the pit is a well-supported assertion, because despite numerous conservative assumptions there is no evidence that the pit water would cause degradation of groundwater quality.

5-11

All of the available baseline water quality wells should be considered in the determination of the potential of the proposed pit to degrade groundwater quality (please refer to the response to comment 5-7).

- 5-12 The Water Pollution Control Permit issued by the Nevada Division of Environmental Protection specifies specific mitigation and monitoring for surface and groundwater.
- 5-13 Please refer to the response to comment 5-7. High TDS and sulfate concentrations are related to natural mineralization, not historic disturbance of the site.
- 5-14 Heap closure is regulated by the State of Nevada (please refer to the response to comment 2-63). It is not possible to determine the constituent concentrations prior to completion of the rinse cycle. The final plan for permanent closure and post-closure monitoring would address any substantive requirements which may be imposed as a result of residual metal concentrations.

Alta has committed to a number of general practices regarding reclamation of the heap after closure (DEIS at 2-19), including sloping the heap, capping the heap, and revegetating the heap. Stormwater diversions would be left in place to divert stormwater around the heap. A more detailed closure plan would be developed prior to closure as required by Nevada Administrative Code (please refer to the response to comment 2-63). That plan would be tailored to the conditions in the heap as they occur at that time, and cannot be stated in more detail at this time.

The setting of numeric criteria to protect waters of the State of Nevada is regulated under Nevada Administrative Code 445A.424. Whether or not these numeric criteria are best set as drinking water standards would be evaluated by the Nevada Division of Environmental Protection at that time when advance notification of permanent closure is provided.

5-14

legitimaterly drinking water quality standards, including secondary standards for sulfate and TDS. The mining proponent should also be required to provide some proven water treatment method as a backup for any untested treatment which is currently under development (i.e. biological reactors). It should be designed to provide a high level of reliability that ground and surface water will not be a problem for the Pyramid Lake Paiute Tribe for the years and decades to come.

5-15

9. The last problem with the draft EIS is that it clearly is considering only the initial portion of this mine. The draft EIS even states that this is, at a minimum, only half of the identified economic ore at the site. The pit lake will clearly be larger, it will go deeper, and it will potentially intercept rock with higher sulfide concentrations. The final EIS needs to consider this larger mine and the associated impacts. This same issue came up on the Pipeline project in the Battle Mountain District. In that case, the BLM and Placer Dome fragmented the mine development into an EA and two EIS's. We believe that segmenting a larger project into smaller projects is inconsistent with NEPA. Is the Carson District following a similar procedure for this mine?

Thank you for the opportunity to comment on this draft EIS.

Sincerely,



Glenn C. Miller, Chair
Toiyabe Chapter Committee on Mining

5-15 Please refer to the responses to comments 3-1 and 3-3.

LETTER 6, REBECCA ANN HAROLD, FERNLEY TOWN ATTORNEY



REBECCA ANN HAROLD
FERNLEY TOWN ATTORNEY

P.O. Box 1362
Fernley, Nevada 89408
(702) 575-6025

14 November 1997

Terri Knutson
EIS Project Manager, BLM
5665 Morgan Mill Road
Carson City, NV 89701

Re: Alta Gold/Olinghouse Mine DEIS comments

Dear Terri:

My comments on the DEIS are as follows:

- 6-1 1. I do not believe the issues concerning cyanide trucks and possibly trains coming through our local communities of Fernley and Wadsworth have been adequately addressed, including cyanide spills, wrecks or other incidents if access is allowed on state highways and local roads through Fernley, not restricted to I-80; emergency plans, emergency response (including training for local volunteer fire departments, law enforcement, medical services and other first responders); associated problems if cyanide trucks park overnight or stop for meals, snacks or drinks within town limits; evaluation of scheduling to minimize potential contacts with school buses, pedestrians, etc.
- 6-2 2. The document ignores or skates around the substantive issues of cumulative impacts. It mistakenly asserts that the potential Fernley/Wadsworth regional water system will not happen until years after the expected life of this mine project, and does not fully address the water issues and conflicts between the two projects. It barely mentions the Truckee River Operating Agreement and again fails to evaluate the cumulative impacts. It completely ignores the Water Quality Settlement Agreement, cui-usi water purchase program, and other pending water rights acquisition programs.
3. More detailed comments regarding specific portions of the preliminary draft are contained in the enclosed memorandum from our consulting engineers.

Sincerely,

Rebecca
Rebecca Ann Harold

cc: Fernley Town Board

- 6-1 All transport on public highways of cyanide or any other material is licensed and regulated by the U.S. Department of Transportation and beyond the scope of authority of the BLM and this EIS.
- 6-2 All known officially proposed water programs are described in Section 4.16.2.4 of the DEIS.

4-110

Olinghouse Mine Project Final EIS

LETTER 6 CONTINUED, WATERSOURCE CONSULTING ENGINEERS, INC.

(6a)



watersource
consulting engineers, inc.

730 DUKE STREET • RENO, NEVADA 89509 • (702) 322-8443 • FAX (702) 322-8567

GEORGE W. BALL, JR., P.E.
PRESIDENT

MEMORANDUM

DATE: November 14, 1997
TO: Rebecca Harold
FROM: George W. Ball, Jr., P.E. and Terry Katzer
RE: Review of Second Draft EIS for Olinghouse
Mine Project Dated September 1997
JOB NO.: 8516.1141

For your ready reference, I have copied our summary statement from the original review dated July 7, 1997.

In summary, there are five main concerns that result from the Proposed or Alternate Actions. First is the potential for groundwater contamination. Spills or other inadvertent releases of contaminants, such as caused by flooding or seismic events, have a high probability of infiltrating through the shallow soil cover to bedrock. Once the contaminants infiltrate the fracture system in the bedrock, it is almost a certainty the fractures will act as conduits to the water table. The second concern is the disruption of the natural drainages, particularly if the mining operation expands by a factor of two or three. Disrupting the natural drainages and channeling the runoff will reduce the potential for natural recharge. Much of this re-directed water will be evaporated back to the atmosphere. The third concern is also related to the disruption of drainages; combining drainages or concentrating the flow from several drainages will increase the flood potential to down-gradient areas. In particular, the AIRSEP facilities, which will have to be designed and built, at additional cost, to minimize the risk from the potential floods. Fourth is the concern of impacts the surface pits will have on the natural recharge and the existing groundwater flow paths. Both are unknown and, therefore, difficult to predict, but in general terms the surface area of the pits will evaporate about 4 feet of water per year and will require a dedicated water right for this use. Altering the flow paths cannot so easily be quantified and impacts on the down-gradient aquifer system are uncertain, but in general the net impact on the groundwater system will be lower water levels. And fifth, is the concern about reflecting water into the groundwater system resulting from pit dewatering. The estimates in the EIS are minimal and the disposal of the water appears insignificant; however, fracture flow is highly unpredictable and there is a high probability that dewatering will produce significant amounts of water over and above the dust control and processing needs. This water cannot be discharged to surface drainages, but must be returned to the groundwater system.

During the last few months, the WATERESOURCE team has been studying the hydrology of the Dodge Flat area and we have reevaluated some of our earlier concerns, which to some extent have been quantified in the September draft. The above concerns are further discussed in the same order below:

First, the potential spill from the heap leach pad can occur in two ways: as a leak or as a catastrophic failure. The leak scenario may be just as dangerous as the catastrophic failure if it is not detected in time. Monitoring wells down-gradient are planned, but some should be angled underneath the pad. The catastrophic failure is still a major concern because the depth to bedrock in the process area is very shallow and once the contaminants reach the fractures in the bedrock they are on their way to the groundwater system. The writers of the EIS did not respond to these comments. From the map (Figure 3.4, p. 3-8), it appears the Processing area is in both Olinghouse and Pierson drainages. It is a long way to the Truckee River, via Olinghouse drainage, and a surface flow from a catastrophic failure probably would not make it, but it is a much shorter way via Pierson drainage.

Second was our concern over the disruption of the natural drainages and the resulting decrease in natural recharge. The amounts are small and virtually unquantifiable.

Our third concern also involved the disruption of the drainages and the resultant potential flood hazard to down-gradient facilities. We now believe that potential is exceedingly small and we are not concerned.

Item four is somewhat confusing in the new draft. On p. 4-5, in Section 4.4.1.1, the writer states that the pit will capture surface flow that will, in turn, reduce the flow in Olinghouse Canyon by 4.5 gallons/minute, but at the same time will increase the groundwater recharge by some unknown amount, presumably by infiltrating some of this water into the groundwater system through the fractures in the pit walls. On p. 4-10, Section 4.4.1.2, the loss to evaporation from the surface of the pit lake is estimated to be 8.1 gallons per minute. The question being is the discharge (evaporation) greater than the surface water inflow of 4.5 gallons per minute that is quantified as recharge. Groundwater flow to the pit is groundwater that is recharge water in the first place. Also, there is no mention of dedicating a water right to this evaporation, about 13 acre-feet/year.

Item five is still a concern and we cannot find any reference to our comments in the new draft.

BLM does not believe that angled drilling of a well under the pad is appropriate from a geotechnical perspective, or justified for this project. There is no way to reasonably quantify (without significant speculation) the leak scenario that you suggest. The DEIS addressed this as a possibility but could go no farther. The pad is graded toward Olinghouse Creek, substantially reducing the likelihood of a catastrophic release down the Pierson Creek drainage. The only water discharged to the Pierson Creek drainage is stormwater diverted upstream of the process area and routed around its western margin.

To clarify the water balance issue for the reviewer, the water balance estimated by SMI (1997) and presented in the DEIS assumes that surface runoff captured by the proposed pit would evaporate or recharge in a different location but in the same proportion that now occurs at the site. The only increase in long-term water loss from the site (i.e., decreased recharge to the Dodge Flat alluvial aquifer) is associated with a net increase in evaporation from the pit lake itself. Alta does have a water right available in Olinghouse Canyon to dedicate to the long-term net evaporative loss from the proposed pit (7.3 acre-ft/year). This evaporative loss is calculated as follows (page numbers from Appendix B, SMI).

1. A total of 13.2 acre-ft/year is estimated to be the total evaporative loss from the pit lake surface (45 in/year x 3.4 acres).
2. Surface water runoff from the drainage divide above the pit to a point immediately downstream from the proposed pit is estimated to be 6.1 acre-ft/year at this time—2.8 acre-ft/year of runoff from upslope (page A-19) plus 3.3 acre-ft/year from the pit area (i.e., 73.4 acre-ft/year of incident precipitation on the area of the pit [3.4 acres of lake + 70 acres of pit wall x 12 inches precipitation/year; pages A-7 and A-19], distributed as 3.3 acre-ft/year [4.5%] runoff [page A-7], 2.7 acre-ft/year [3.7%] recharge using Maxey-Eakin relation between elevation and recharge fraction, and the remainder as evapotranspiration).
3. The assumption is made that 5.9 acre-ft/year of this surface water would have been lost to

evapotranspiration within the project area downstream from the pit and that no more than 0.2 acre-ft/year (3%) of this surface runoff would have recharged the Dodge Flat alluvial aquifer (again using Maxey-Eakin).

4. Therefore, the net increase in evaporative (or evapotranspirative) loss with the project would be $13.2 - 5.9 = 7.3$ acre-ft/year.

The sentence suggesting that some of this loss would have been recharged was incorrect and has been deleted. The net permanent increase in evaporative water loss is also addressed more completely (see *Errata* for page 4-13). For more details on the water balance in the vicinity of the pit, the reviewer is referred to Appendix B of SM1 (1997).

6a-3

Please note that the proposed project has been revised so that all water from pit dewatering would be used on-site and pumping from the Dodge Flat aquifer would be reduced accordingly.

6a-4

6a-5

In the final analysis, the impact on the Truckee River will be equal to the amount of groundwater used by the mine. If the mine pumps the full 580 acre-feet/year allowed by their permit that is exactly the impact on the Truckee River. In Section 4.4.1.2, p. 4-11 the authors suggest it will only be about half that because pumping from Dodge Flat will cause groundwater, that is part of the Truckee River flood plain aquifer (recharged by the Truckee River), to move to the west and replenish the aquifer underlying Dodge Flat. That groundwater is already in the Truckee River system and its removal from the system is an impact. Another item not mentioned is the water quality aspect. The groundwater in the vicinity of the mine's well is excellent quality; however, the further down-gradient (toward the Truckee River), the worse the quality is. So when the better water is removed the overall quality of the groundwater is deteriorated.

cc: Kurt Kramer
Terry Katzer

6a-4

The reviewer makes an important point; however, impacts to the Truckee River system are best measured at Pyramid Lake, the terminus of the basin. At Pyramid Lake, the full volume of groundwater withdrawal by the proposed mine would be lost to the system, albeit over a much longer period of time than used in the PTI (1997) model. The model predicts an immediate (i.e., within 2 years of the commencement of pumping) impact to the Truckee River downstream of Wadsworth of 0.49 cfs, and a total volume reduction to Pyramid Lake of 2,300 acre-ft over a 9-year period starting at the inception of pumping (DEIS at 4-11). The remaining 1,400 acre-ft predicted to be consumptively used by the proposed project (excluding the permanent net evaporation from the pit lake of 7.3 acre-ft/year) would ultimately be lost from the system over a more geologic time scale at a rate not calculable using the model in PTI (1997) and not likely to be detectable in the surface water system. Estimates of the total cumulative effect on Pyramid Lake elevation have been added (see *Errata* for DEIS at 4-11, 4-13, and 4-40).

6a-5

Water removed by either dewatering the proposed pit or pumping Alta's production well is, in fact, likely to be of poor quality exceeding secondary water quality criteria for total dissolved solids (TDS) and sulfate. Since the DEIS was issued, the results of another round of groundwater monitoring from late July 1997 were made available that confirmed elevated concentrations of these constituents. The average concentration of TDS and sulfate in all four monitoring wells and one site exploration well over the last year were 512 mg/l and 306 mg/l, respectively. These slightly exceed the secondary water quality criteria of 500 and 250 mg/l, respectively. The BLM now has the results of groundwater quality analyses of a sample collected on November 10, 1997, from Alta's production well. TDS and sulfate concentrations in this sample were 828 mg/l and 460 mg/l, respectively, and were confirmed in a duplicate analysis. On this basis, we do not expect the Proposed Action to degrade groundwater quality in the Dodge Flat alluvial aquifer.

LETTER 7. SIERRA CLUB, TOIYABE CHAPTER - NEVADA AND EASTERN CALIFORNIA



SIERRA CLUB

Toiyabe Chapter - Nevada and Eastern California

PLEASE REPLY TO:

☐ GREAT BASIN GROUP

☐ LAS VEGAS GROUP

P.O. Box 8056

P.O. Box 19777

University Station

Las Vegas, Nevada 89119

Reno, Nevada 89507

720 Brookfield Drive

Reno, Nevada 89503

November 11, 1997

Terri Knudsen, Project Manager
Carson City District BLM
5665 Morgan Mill Rd.
Carson City, NV 89701

Dear Ms. Knudsen: Re: Olinghouse Mine Project DEIS

Thank you for this opportunity to comment on the referenced mine project. We were disappointed that no public comments were accepted at the two open house meetings, although the statement was made in your cover letter of Sept. 12, 1997, that such comments would be accepted. We believe this unfortunate lack of public involvement is contrary to standard BLM policy on many similar projects and may actually be contrary to NEPA regulations. We are therefore asking that the public comment period for this project be extended so that everyone can give input, both orally and in writing.

The Sierra Club has numerous concerns about the effects of this mine project on the resources of the south end of the Pah Rah Mountains and on the Truckee River. These include dewatering and formation of a pit lake at the mine site, potential contamination of the Dodge Flat aquifer from spills from the site, and drawdown and instream flow effects of the production well proposed in the Dodge Flat aquifer near the Truckee River.

The heap leach pad and waste rock dumps will be built in drainages that can reach the Truckee River during high flows. The BLM assumption that this flow will not reach the river is dangerous. The Truckee River and Pyramid Lake support a threatened species, the Lahontan Cutthroat Trout, and an endangered species, the cui-ui. Pyramid Lake also supports many bird species, including a wildlife refuge for the white pelican. Clearly, any potential spills will cause totally unacceptable impacts. The DEIS fails to analyze these impacts.

Also the increased traffic on the Olinghouse Road will increase sedimentation and dust in the adjoining riparian area of Olinghouse Canyon. This is the primary riparian habitat in the south Pah Rah Mountains, and destruction of this habitat would displace many species. The analysis of the pit drawdown cone does not adequately consider the effects of drawdown on this area.

The DEIS cover letter of September 12, 1997 clearly states the open house format of the public meetings and that comments would be accepted. Comment forms and a table to write or dictate comments were openly available at both open house meetings. See response to comment 4-1.

Please see response to comment 1-1 regarding the increased size of the event pond, which would increase the safety of the site design. Note, too, that the DEIS clearly indicates the infrequent conditions under which stormflows from Olinghouse Canyon reach the Truckee River (DEIS at 3-10). This pattern of intermittent drainage in the mountain ranges, evaporating or infiltrating on alluvial fans and not reaching major drainages as surface water, is common throughout the Basin and Range physiographic province. Potential impacts from spills are discussed in the DEIS at page 4-10, and are not omitted as the reviewer states. The reviewer presents no basis for the statement that, "any spills would cause totally unacceptable impacts," and site conditions (including the largely incomplete surface water pathway between the site and the Truckee River) do not justify such a conclusion.

As stated previously in the response to comment 3-12, the roads would be treated with water and/or chemical dust suppressants to control fugitive dust. In addition, the DEIS at 2-20 states Alta's commitment to take measures to prevent additional sediments from reaching the stream in Olinghouse Canyon.

Please refer to the response to comment 1-19.

7-5 Pumpage from the production well near the Truckee River will probably draw water from the river and cause drawdown in the riparian areas. Seedling cottonwood trees are sensitive to groundwater levels. Pumpage during low flow periods could cause these levels to drop below acceptable levels and cause the loss of an entire year's seedling recruitment. Since 502 acres of native vegetation will be disturbed, there must be a formal commitment to reseed this disturbed land with only native species and to repel any invasion by exotic species.

7-7 Disturbance to wildlife from noise and human activity will occur on far more land than the 502 acres which are directly disturbed. The potential impact of the Proposed Action on pronghorn migration routes or calving grounds must be studied. In addition, the population of bighorn sheep is so small that the removal of even part of their range in the Pah Rah and Virginia Mountains could be significant.

7-8 We believe that the noise effects of the Proposed Action, both on the residents of the nearby area and on recreationists have been minimized. An operating, heap leach mine is extremely noisy, and such an effect could extend for miles in all directions. This could be extremely disturbing to the members of the Pyramid Lake tribe who live in Fernley and on nearby ranches.

7-9 The great increase in traffic that would occur as a result of the mining activity would have a direct effect on the town of Wadsworth and particularly on the Wadsworth School. If Alternative A is adopted, this would not occur. However, the site of the road necessary to be built under Alternative A has not been surveyed for cultural resources.

7-10 The most disturbing aspect of this proposed project is that the present mine proposal is probably just the "tip of the iceberg." The DEIS states that "although the Proposed Action covers a mine life of 5 years, verified reserves are now about twice the quantity on which the Plan of Operations is based." Alta Gold has stated that they have increased their land holding to 9100 acres and have staked 140 additional mining claims in the Olinghouse Mining District. Thus a proposed five year project could extend for many years with extreme environmental effects, which have not been considered in the present DEIS. These would include greatly increasing the amount of dewatering in the Dodge Flat Aquifer, increasing the likelihood of cyanide and other spills into the Truckee River with extremely negative effects on the cut-throat and Lahontan cutthroat trout, and having a prolonged and extensive effect on the wildlife of the area.

The BLM must analyze development of all Alta Gold's holdings in this area and consider all reasonably foreseeable future

7-5 Please refer to response to comment 3a-39.

7-6 Please refer to response to comment 4-20.

7-7 Please refer to the responses to comments 2-39 and 2-40.

7-8 The BLM has evaluated noise, and especially its impacts on nearby human populations. We believe that the analysis in the DEIS at 4-27 and 4-28 addresses this concern. Also, please refer to the response to comment 2-44.

7-9 Please refer to the response to comment 2-44.

7-10 Please refer to the response to comment 3-1.

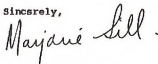
Terri Knudsen
11/11/97. Page 3.

7-10

impacts that could occur if these holdings are developed. If this analysis is not done at this time, a potentially gigantic gold operation could occur, similar to what is going on in the Carlin and Battle Mountain districts, with essentially no planning. The Truckee River and Pyramid Lake are too important to allow this to occur.

Please keep us informed about the progress of this proposal. We hereby request a copy of the Final EIS and the public comments. If a real public hearing is scheduled as we have requested above, we wish to be included in this process.

Sincerely,



Marjorie Sill, Federal
Lands Coordinator

Terri Knudsen
11/11/97. Page 3.

LETTER 8, U.S. FISH AND WILDLIFE SERVICE, RENO FISH AND
WILDLIFE OFFICE



United States Department of the Interior

FISH AND WILDLIFE SERVICE
RENO FISH AND WILDLIFE OFFICE
4600 KIETZKE LANE, SUITE 125C
RENO, NEVADA 89502-5055

① 11/18
DM ~~88~~
NR ~~82~~
RCC —

November 14, 1997
File No. BLM 6-4

Memorandum

To: District Manager, Carson City Field Office, Bureau of Land Management,
Carson City, Nevada

From: Field Supervisor, Reno Fish and Wildlife Office, Reno, Nevada

Subject: Draft Environmental Impact Statement for the Olinghouse Mine Project

We have reviewed the draft Environmental Impact Statement (EIS) for the Olinghouse Mine Project and your report entitled Effects of Pumping the Olinghouse Mine Supply Well on Dodge Flat and the Truckee River, Washoe County, Nevada (PTI). The Alta Gold Company (Alta) proposes to develop the Olinghouse Gold Mine in Washoe County, Nevada. Olinghouse Canyon is located in the Pah Rah Range and is a tributary to the Truckee River. Alta's proposed action consists of two open pits; a waste rock dump; an ore crushing, milling, and leaching complex; haul and access roads; water pipeline; electric transmission line; equipment maintenance facility; analytical laboratory; fuel and reagent storage facilities; and water and solution control structures. Approximately 502 acres would be disturbed by mine development. The following comments are provided for your consideration.

GENERAL COMMENTS

In brief, we recommend the final EIS thoroughly describe the assumptions, analytic process, and conclusions regarding the risk of a release of contaminated solutions from the mine site which could reach the Truckee River and impact the aquatic environment, including listed fishes. We also recommend post mine closure monitoring of the pit lake water quality, surface water quality, and ground water quality given potential long-term impacts to the Truckee River. We would also like to thank Tom Olson of your staff for his time and expertise in explaining to us the assumptions and conclusions in the PTI report.

The Scoping Report is incorporated in the FEIS as Appendix A.

SPECIFIC COMMENTS

- 8-1 1.4 Public Scoping, page 1-3. Public scoping is described on pages 1-3 and 2-1. However, a summary of the issues was not provided. We recommend the final EIS present a summary of the scoping comments, as well as how those comments were used to develop the alternatives and mitigation measures.
- 8-2 1.3 Authorizing Actions, Table 1.1, page 1-4. We recommend the Migratory Bird Treaty Act be included in Table 1.1. The correct name of the law relating to endangered and threatened species is the Endangered Species Act, not the "Threatened and Endangered Species Act." Table 1.1 identifies the need for a National Pollution Discharge Elimination System permit; this implies that there will be effluent flows off the mine site. If so, this discharge should be fully described and its effects analyzed in the final EIS.
- 2.1.2.1 Mine Pits, page 2-8. It is stated that 10 to 100 gallons per minute may be dewatered from the pit and used for dust suppression, process water, or discharged with little to no treatment to surface drainages. Analysis of potential impacts of discharging this water to surface drainages was not apparent in the environmental consequences section. We recommend the final EIS evaluate the need to treat discharged fluids and the potential environmental consequences of discharging water from the pit into surface drainages.
- 8-3 2.1.2.3 Ore Processing Facilities, page 2-9. We recommend the use of buried drip emitters on the heap leach pad to prevent surface ponding of cyanide solution which may attract wildlife. If buried drip emitters are not used, we recommend monitoring of the heap leach pad to determine if puddling of cyanide is occurring. If puddling occurs, net panels should be used to prevent access by birds and bats to the cyanide solution.
- 8-4 2.1.3.3 Water Supply, page 2-13. It is stated that a 1.5 million-gallon freshwater pond would provide storage for fire protection and mining process needs. The draft EIS did not address environmental impacts of this pond on wildlife. The pond may be beneficial to wildlife (particularly birds) by attracting them away from solution ponds, or may be a detriment by attracting more wildlife to the area which may increase wildlife exposure to the solution ponds. We recommend the final EIS evaluate the potential impacts of the freshwater pond on wildlife.

- 8-2 The Migratory Bird Treaty Act has been added to Table 1.1, and the correction has been made to the Endangered Species Act. The mine would be operated as a zero discharge facility, so a NPDES permit would not be required and need not be analyzed in the EIS.
- 8-3 Drip emitters would be used. Please refer to response to comment 1-6.
- 8-4 The freshwater pond would be located approximately 1.5 miles north of the process area, and would neither attract wildlife to, or away from, solution ponds. It would be located adjacent to the haul road connecting the pit and the waste rock dump and, due to human activity and noise, would be unlikely to attract significant numbers of wildlife.

All power lines would have raptor protection as described in Section 5.6 of this FEIS.

8-6 Please refer to response to comment 6-1.

8-5 **2.1.3.4 Electricity, page 2-13.** It is stated that two above ground 49 kilovolt power lines (one 500 feet in length and one 1.2 miles long) would be built to provide power to the mine site. The draft EIS did not contain an analysis of environmental impacts of the proposed power lines on wildlife. The final EIS should evaluate whether the proposed power lines would pose a hazard to birds. If so, mitigation measures should be identified.

8-6 **2.1.5 Uses, Storage, Transport, and Disposal of Hazardous Materials, page 2-17.** We are concerned about potential hazardous or toxic spills into the Truckee River associated with the transportation of materials to the mine site. Given close proximity of the mine to the Truckee River, we urge Alta to consider preparing for an emergency spill along the Truckee River between the Wadsworth exit and Olinghouse Canyon Road. Mine personnel and equipment could be the first on the scene in the event of a hazardous spill. An expeditious response could protect or lessen potential impacts on aquatic resources in the Truckee River.

8-7 In comparing Tables 2.5 and 2.6, antifreeze waste production appears to be two times that consumed per month. This apparent discrepancy should be clarified.

8-8 **2.1.8 Reclamation, page 2-19.** The document states that liquids from the working or storm event ponds would be allowed to evaporate or alternatively land applied during reclamation. Land application of these liquids was not analyzed in the environmental consequences section of the draft EIS. We recommend the final EIS address the environmental impacts of land application of these solutions. Specifically, the potential for contaminants to infiltrate into the ground water or surface drainages, and impacts on upland vegetation and wildlife should be evaluated.

8-9 **2.1.9 Environmental Protection and Monitoring, page 2-20.** We support the mitigation measures identified to protect bats. However, we recommend a monitoring program be established to determine if excluded bats subsequently use adjacent unoccupied habitats.

8-10 **2.1.9 Environmental Protection and Monitoring, page 2-23.** We recommend post mine closure monitoring of the pit lake water quality, surface water quality, and ground water quality. If the quality of water in the pit lake is lower than originally predicted, a new ecological risk assessment should be conducted. We recommend surface water quality be monitored at the base of the waste rock dump and heap leach pad, and in down gradient seeps and springs. Ground water quality should be monitored over time to determine if contaminants are moving through the pit lake, or from other sources, into the Dodge Flat aquifer.

8-8 Land application was one of the options suggested for final disposal of liquids from the minesite at closure. Prior to land applying these solutions, the water would have to be neutralized and no contaminants present. A permit from NDEP would be required and specific standards met.

8-9 Your comment is noted; however, BLM believes that any monitoring program would require capturing and handling bats, which would likely result in additional mortality. In addition, there is a relatively small population of bats in the project area, and mitigation measures to reinforce collapsed shafts and adits would provide adequate unoccupied habitat.

8-10 Post mine monitoring of water quality would continue for years after actual mining until neutralization of leach pads and successful revegetation. Please refer to the responses to comments 1-18 and 2-56.

8-11 3.4.1 Surface Water, page 3-10. It is stated that regardless of the peak flood flow, culverts limit the discharge under the highway to 30 cubic feet per second, of which no more than 13 cubic feet per second are likely to reach the Truckee River due to infiltration losses. During the January 1997 flood, water was observed flowing over the road (Steven Kinerson, Pyramid Lake Paiute Tribe, pers. comm.). We are concerned with the potential for a storm event to overwhelm the facilities and release toxic solutions into the environment and eventually the Truckee River. This concern is based on the observation of water flowing over the road during a flood event, the statement in the draft EIS that water can reach the Truckee River during peak flow events, and the fact that the majority of facilities are designed for a 25-year storm event. We recommend the final EIS thoroughly analyze and describe the risk of a storm event exceeding the capacity of the facility. The probability of released toxic or hazardous solutions reaching the Truckee River should be identified. The discussion should also quantify the dilution or "loss" of elements due to absorption into the alluvium and the resulting concentration of substances in the solution when it reaches the Truckee River. A final conclusion of potential impacts to the Truckee River and all life stages of cui-ui and Lahontan cutthroat trout should be presented.

8-12 3.4.1 Surface Water, Table 3.1, page 3-11. Some aquatic life standards in the table are based on hardness. As water hardness decreases, the concentrations for the aquatic life standards also decrease (i.e., toxicity increases). The value of 400 milligrams per liter of calcium carbonate (CaCO_3) is quite hard, even though it is below the predicted value for the pit lake and ground water (page 3-15). We recommend the use of a lower hardness value in making the calculations for the aquatic life standards.

8-13 3.5 Soils, page 3-19. We are concerned whether the reclamation goal for the mine could be achieved given the following statements in the draft EIS: (1) Soils within the proposed area are typically very shallow and stony and have poor potential for reclamation and a severe water erosion hazard (page 3-19); (2) loss of soil fertility and soil structure would occur during soil salvage and stockpiling (page 4-13); (3) topsoil replacement would be 5 to 22 inches over 402 acres, but this does not account for the increased surface area on the sides of the waste dumps and leach pad (page 4-14); and (4) estimates do not account for soils that may have physical or chemical characteristics that render them unsuitable as a growth medium or for the steep slopes and rock outcrops that may prevent salvage (page 4-14). The analysis in the draft

Please refer to response to comment 1-1 regarding design of the event pond. With this design, runoff from the process area associated with up to a 100-year storm would be retained at the process area, further reducing the chance of hazardous chemicals being transported to the Truckee River. Note that Steve Kinerson's observations were associated with White Horse Creek, north of the project area (Kinerson, personal communication on 1/27/98 contacted by Anne MacDonald, PTI Environmental Services, Boulder, Colorado), and not with Olinghouse Creek. Flow in White Horse Creek is nearly perennial, and the distance between the mouth of White Horse Canyon and Highway 447 is approximately half the distance of that from the mouth of Olinghouse Creek to the highway. Therefore, the response of White Horse Creek to storms in January 1997 is not an appropriate analog for the response of Olinghouse Creek to similar hydrologic conditions.

8-12 On the basis of all measurements of groundwater quality, which would dominate the quality of the eventual pit lake, there is no basis for using a lower hardness value to represent site conditions.

8-13 Test plots would be required on-site throughout the life of the mine as mitigation to assess success and determine revegetation needs, as described in Section 5.7 of this FEIS.

8-13

EIS did not provide a conclusion on whether reclamation would be successful. We recommend the final EIS state whether the reclamation goal could be achieved. If this is not possible, mitigation measures should be identified to achieve restoration of soils and native plant communities. Mitigation measures could include soil augmentation, soil inoculation, and/or importation of top soil from other sources.

8-15

No suitable habitat for threatened, endangered, candidate, or sensitive plant species occurs in the power line, water pipeline, or proposed well site. All but the proposed well site are areas that have been previously disturbed. The proposed waterline and powerline follow existing rights-of-way authorized under R/Ws N-38420 and N-52282. Both lines were analyzed under R/W application N-38420 by EA-NV-030-4-09, Nevada Pacific Mining Company, November 1983, which is incorporated by reference in this EIS.

8-14

3.8.1 Threatened, Endangered, and Candidate Wildlife Species, pages 3-29 and 3-30. Statements on page 3-29 concerning the Truckee River, Pyramid Lake, and cui-ui are not necessarily accurate. We offer the following clarifications. The third sentence in the fourth paragraph should read "From 1905 through 1964, more than half of the Truckee River, on average, was diverted to irrigate crops in the Newlands Project—one of the Nation's first reclamation..." The fourth sentence in this paragraph should specify that water diversions associated with the reclamation project were the primary cause, but not the sole reason, for the decline in the elevation of Pyramid Lake. In this same sentence it is stated that a "sand bar" was exposed at the mouth of the Truckee River. The referenced "sand bar" is correctly identified in the next paragraph as a delta. In addition, the "sand bar" was not "exposed," but rather created as the water elevation declined causing the Truckee River to become incised and large amounts of sediments deposited at the mouth.

In the third sentence of the fifth paragraph the word "provide" should be deleted in reference to the Truckee River reservoirs. In the fourth sentence, we recommend adding the phrase "or more" after the statement that cui-ui often live to be 45 years of age. The fifth sentence should be edited to read "Current management strategies are to maximize ..."

The first sentence of the second paragraph on page 3-30 should be edited to clarify that the Newlands Project was the primary, but not the sole, reason for the decline of Lahontan cutthroat trout.

8-15

3.8.3 Threatened, Endangered, and Candidate/Sensitive Plant Species, page 3-32. It is stated that no threatened, endangered, candidate, or sensitive plant species occur in the project area. However, the powerline, water pipeline, and proposed well site are not included in the area designated as the project area. We recommend the final EIS specify whether these areas were surveyed for listed or sensitive plant species. If not, surveys should be conducted in all areas where surface disturbance would occur.

Please refer to the responses to comments in 1-5 and 2-34.

8-17 Please refer to the response to comment 1-1.

- 8-16 4.1.1 The Proposed Action, page 4-1. We recommend the final EIS evaluate the potential for a major earthquake to cause failure of pipes, tanks, and ponds containing cyanide solutions.

4.4.1.1 Surface Water, page 4-5 through 4-9. As stated above, we are concerned about the potential risk of contaminants reaching the Truckee River and believe the final EIS should clearly state the assumptions and analysis conducted to evaluate potential risks to the aquatic resources, including cui-ui and Lahontan cutthroat trout, in the Truckee River.

- 8-17 In the fourth paragraph on page 4-5 it is stated that spill prevention measures would minimize releases of hazardous materials to the drainage network. We believe it is important to state the flow conditions (such as a 100 year or 500 year flood event) under which these measures could fail and what impact such a failure would have on aquatic resources (see comments above). If the analysis shows the risk is high that aquatic resources and water quality in the Truckee River could be adversely impacted, we recommend the facilities be engineered to withstand a flood event that could release hazardous substances to the Truckee River.

- 8-18 The conclusions in the second paragraph on page 4-9 should be substantiated. For example, it is stated that a catastrophic failure of the heap leach pad (as during a seismic event in excess of the design magnitude, coupled with full or excess discharge of water) is considered highly unlikely, but such failure could release more than 7 million gallons of water from the pad and ponds. The final EIS should recognize that a catastrophic failure could also occur during a storm event greater than the control structure design. The statement should state what scale of a seismic event is being referenced. The conclusion that this event is "unlikely" should be substantiated. An analysis should be performed on the environmental consequences of more than 7 million gallons of contaminated water being released. The rationale for the statement that such a release would be diluted, or that contaminants would be made non-bioavailable, should be substantiated and quantified.

- 8-19 4.7.1 The Proposed Action, page 4-17. The potential for bird and small mammal mortality from exposure to cyanide solutions should be included in the discussion of impacts to wildlife.

8-18 The proposed process area facilities are designed to the maximum likely seismic event of Richter magnitude 7.2, and a peak ground acceleration of 0.18 g (i.e., 0.18 times the acceleration of gravity, rather than "grams" as stated in the Water Pollution Control Permit Volume 1, Section 3.6). This follows State of Nevada guidelines. Because the event pond would be enlarged (see response to comment 1-1), the joint probability of ground motion exceeding the threshold value during a storm in excess of the design storm is $0.01 \times 0.01 = 10^{-4}$ /year, or 0.07% over the 7-year course of the Proposed Action.

- 8-19 No bird or small mammal mortality from exposure to cyanide solutions is anticipated.

Your comment is noted, and the text in the DEIS at 4-19 has been modified accordingly.

8-20 4.7.4 Mitigation and Monitoring, page 4-19. It is stated that if active bird nests are found, disturbance would be delayed until the young birds have left the nest, unless authorized by the Fish and Wildlife Service. We support your efforts to protect migratory birds, but under the Migratory Bird Treaty Act, the Service cannot authorize the disturbance of active bird nests. We recommend this statement be corrected in the final EIS.

8-21

Please refer to the responses to comment 1-1, 1-4, and 1-5.

8-21 4.8.1 The Proposed Action, page 4-19. The statement that there would be no toxic discharges to either the Truckee River or Pyramid Lake (emphasis added) and, therefore, cui-ui or Lahontan cutthroat trout would not be adversely affected should be substantiated; see comments above concerning surface water.

8-22

The key aspect of cumulative impact analysis is its relevance to the decision making process. Since the proposed action already includes full reclamation of all disturbed areas except the pit, further details for the cumulative impact analysis are not necessary. Please note that the CEQ regulations discourage the accumulation of extraneous background data and emphasize real environmental issues (40 CFR 1500.2). However, for the commentor's information, the term "small" refers to the fact that any reasonably foreseeable mining development in the area would likely be a minor percentage of the tens of thousands of acres of undisturbed soils, vegetation and wildlife habitat in the area. Detailed descriptions of landscape level soil characteristics are included in the referenced material in conformance to the CEQ regulations (40 CFR 1502.21).

8-22 4.16 Cumulative Impacts, page 4-35. We recommend the cumulative impact analyses for soils; vegetation and wetlands; wildlife; and threatened, endangered, and candidate/sensitive species be expanded to include a qualitative discussion of impacts at a larger scale. For example, the statement that the area of soil disturbance would still be "small" compared to "adjacent undisturbed areas" should be clarified. A general description of soil conditions on a landscape level, as well as in the watershed (the cumulative impact analysis only quantified impacts associated with Alta's mining activities) would be helpful to put into perspective the concepts of "small" and "adjacent undisturbed areas." The cumulative impact assessment for vegetation stated the same conclusion that impacts would be "small" compared to "adjacent undisturbed areas." Again, a qualitative discussion of how this conclusion was reached would be helpful. The conclusion that the proposed action is not anticipated to affect any wetland areas and does not contribute to cumulative impacts to wetlands (page 4-42) appears contradictory to the statement on page 4-16 that an ephemeral seep, not accompanied by riparian vegetation, would be affected by the waste rock dump. We recommend the cumulative impact assessment discuss whether other ephemeral seeps have been eliminated or are expected to be affected in the future. The cumulative impacts on wildlife are expected to be relatively "small" compared to the "total area." This statement could be enhanced by a qualitative discussion on how this conclusion was reached and what is meant by "small" and the "total area." Also, the statement that the 26,000 acre area "blocked-up" by the Bureau of Land Management would benefit wildlife by simplifying management activities, such as the introduction of bighorn sheep, could be expanded to identify likely actions to occur. The term "simplifying" should be explained.

Please refer to the response to comment 1-7. No other springs, seeps or wetland areas would be impacted.

The BLM recently acquired 8,200 acres of land in the Pah Rah Range to enhance wildlife habitat and other public land values. This acquisition converted an area with a checkerboard land ownership status to a solid block of public land, simplifying future land management activities, including wildlife habitat management. Land use planning for the area is currently underway and it would be inappropriate to presuppose what decisions would result. However, when considered in conjunction with BLM's cooperative open space planning effort with Washoe County, BLM is currently improving wildlife habitat on a broad scale throughout the region. Further information about this effort is available from BLM's Carson City Field Office.

4.16.1.1 Past and Present Related Development Actions, pages 4-35 through 4-37. The first sentence in the eighth paragraph on page 4-35 should be edited to read "the 1905 Newlands Reclamation Project..."

Statements in the third sentence of the third paragraph on page 4-36 are not accurate. Specifically, it should be stated that other dams on tributaries of the Truckee River in California are in place to primarily serve Orr Ditch Decree water rights and private water rights, and secondarily to provide stream flow regulation and/or flood control. In addition, Independence Lake should be included in the list of lakes and reservoirs. We recommend the term "litigation" in the fourth sentence be replaced with the word "decree." The fifth and sixth sentences are not true statements. We recommend that these two sentences be deleted from this paragraph. We recommend the term "water wars" in the seventh sentence be replaced with "water conflicts."

8-23

Statements in the first sentence of the fifth paragraph on page 4-36 are not accurate. Specifically, the value of 320,000 acre-feet refers to both the Carson and Truckee Rivers combined. The statement that this is just over half of the river's average annual flow should be clarified as to which river is being referenced. Today, about 100,000 acre-feet or less, on average, is supplied to the Newlands Project from the Truckee River. The fourth sentence in this paragraph should state that the transfer of water rights to local government agencies is for municipal and industrial purposes.

The actions described in the seventh paragraph beginning on page 4-36 have not been implemented. These actions may be implemented through a Truckee River Operating Agreement; however, such an agreement has not been signed.

It should be clarified in the second paragraph on page 4-37 that Sierra Pacific's primary requirements are to meet municipal and industrial water needs, not power generation or cooling.

Please refer to the response to comment 8-19.

- 8-24 4.16.2.7 Wildlife, page 4-42. It should be stated that, with an anticipated increased mine life, cyanide related mortality of birds and small mammals may increase.

8-25

Introduction of fish to the pit lake is not proposed and if, in the future, there is such a proposal it would be analyzed through the NEPA process and USFWS would be consulted.

8-25

Although the proposed action does not include the introduction of fish into the pit lake, fish have been introduced into other pit lakes in Nevada. We do not recommend fish introductions into the pit lake. If it is anticipated that fish would be introduced into the pit lake, risks to fish-eating birds from exposure to trace elements through bioaccumulation, bioconcentration, or biomagnification in the food chain may occur. If fish introductions are anticipated, an ecological risk assessment should be conducted to include fish consumption by fish-eating birds and humans.

8-26

Increased mine life is not proposed and if it is proposed in the future, all aspects of that increase would be analyzed.

- 8-26 4.16.2.15 Hazardous and Solid Wastes, page 4-43. The document should state that, with an anticipated increased mine life, there would be a greater risk of a spill of hazardous materials.

COMMENTS ON THE PIT REPORT

As a report presenting the technical aspects of an environmental analysis, the document did not provide a logical thought process to reach its conclusions. In particular, the rational for assumptions in the model was not always evident, conclusions did not appear to be substantiated, and the cumulative impacts analysis did not appear to take into account the pit, pit lake, pit lake dewatering, or other wells that may be affecting the aquifer. Our concerns and questions regarding the model and potential impacts to the aquifer and Truckee River were addressed by Tom Olson of your staff at a meeting on November 3, 1997. We do, however, recommend that if through monitoring the impacts of ground water pumping in Dodge Flat are greater than anticipated, any additional impacts be mitigated.

We appreciate the opportunity to provide comments on the draft EIS. If you have any questions, please contact Pamela Repp or Mary Jo Elpers for National Environmental Policy Act related issues and Stephanie Byers for endangered species related issues at (702) 784-5227.



Robert D. Williams

District Manager

File No. BLM 6-4

cc:

State Director, Bureau of Land Management, Reno, Nevada
Administrator, Nevada Division of Wildlife, Reno, Nevada
Regional Manager, Nevada Division of Wildlife, Fernley, Nevada
Administrator, Nevada Division of Environmental Protection, Carson City, Nevada
Chief, Office of Federal Activities, Environmental Protection Agency, San Francisco, California
Chairman, Tribal Council, Pyramid Lake Paiute Tribe, Nixon, Nevada
Assistant Regional Director, Klamath and California Ecoregion, Fish and Wildlife Service,
Portland, Oregon
Assistant Regional Director, Interior Basin Ecoregion, Fish and Wildlife Service,
Portland, Oregon

LETTER 9, BUREAU OF INDIAN AFFAIRS



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
WESTERN NEVADA AGENCY
1677 HOT SPRINGS ROAD
CARSON CITY, NEVADA 89705

IN REPLY REFER TO:
Land Operations
(702) 897-3550

memorandum

Date: November 21, 1991

Reply To: Superintendent, Western Nevada Agency
ATTN: Patrick Williams, Land Operations Officer

Subject: Comments: Draft EIS, Olinghouse Mine Project

To: Terri Knutson, BLM, Olinghouse Project Manager

General Comment

Indian Trust Assets should be a separate section rather than a subsection (3.14.6) of Socioeconomics.

Specific Comments

	PAGE	PARA- GRAPH	COMMENT
9-1	3-10	1	Terminology relative to water quality should be clarified; for example, does "exceeded" mean that water quality was better than the standard or that it was inferior? Also, as local data are not presented, Table 3.1 has no application.
9-2	3-29	4ff	There are a number of inaccuracies relative to esi-ui and Lahontan cutthroat trout. (N.B. I would rather explain the problems via phone or meeting rather than take the time here; they can be corrected easily.)
9-3	4-10	6	The duration of the impact is unclear. Is it nine years or longer? If nine years only, then a more accurate reference would be something like "the projected nine-year period of impact". Also, the impact of the project on Pyramid Lake elevation should be stated. Include time for reclamation activities (especially those that require irrigation).
	4-20	1	Refer to resolution of previous issue for appropriate language relative to mitigation/monitoring.

9-1 Exceedance of water quality standards refers to values in excess of maximum standards (e.g., TDS) or less than minimum standards (e.g., dissolved oxygen). Local data are presented in text, and Table 3.1 is presented to assist in the interpretation of these values. For a comprehensive set of baseline water quality data, the reader is referred to documents cited in text (particularly SMI 1997a, 1997b, and 1997c).

9-2 Consultation with BLM biologists confirmed the accuracy of the analysis of the cui-ui and the Lahontan cutthroat trout.

9-3 The projected project life is seven years (five years of mining and two years of detoxification/reclamation), although the model was run for an additional two years. During the 9-year period, the predicted reduction in flow to the Truckee River system is 2,300 acre-ft. As discussed in the response to comment 6a-4, there would be no detectable impacts. Over a longer time period, associated with full recovery of the aquifer from the consumptive use of the remaining 1,400 acre-ft of water under the Proposed Action, flows in the Truckee River would be slightly diminished. However, the rate of this process, which is of most concern for instream sources, cannot be captured with the existing PTI (1997) model. It is likely that they would occur over at least a 20-year period, at the rate of less than 70 acre-ft per year (<0.1 cfs). This quantity is not detectable within the uncertainty of streamflow measurements; therefore, the impact cannot be considered significant. Text further describing the impact on Pyramid Lake from the Proposed Action has been added to the DEIS at 4-11 and 4-13. Text regarding the impact of water withdrawal on lake elevation from the reasonably foreseeable future expansion of the project has been added to the DEIS at 4-40. These calculations assume a surface area of the lake of 111,360 acres (450 km²) and represent the total possible decrease in lake elevation, not the annual decrease in lake elevation.

The duration of on-site monitoring after mine closure would be dictated by the BLM and the State of Nevada in closure plans and reclamation bond release. Please refer to the response to comment 1-13 regarding the infeasibility of monitoring for project impacts on the Truckee River proper. These remarks also apply to detecting project impacts at Pyramid Lake.

9-4

9-5

9-6

4-36	1	Prior to 1967, approximately half of the Truckee River discharge, on average, was diverted to the Truckee Canal for use on the Newlands Project. Current Project demand (Truckee and Carson Divertments) is approximately 294,000 acre-feet, and approximately one-fifth of annual Truckee River discharge, on average, is diverted to the PIC, etc.
4-40	1	Replace "reservoirs fed by the Truckee River" with "upper Truckee River reservoirs".
4-40	2	Impacts attributed to the proposed action identified in the DEIS should be mitigated independent of other actions in the basin, the benefits of TROA cannot be assumed to compensate for the proposed action.
4-40	2	See previous comment.

Please feel free to contact Patrick Williams at (702) 887-3550, or Tom Strekal at (702) 887-3599 with any questions or comments.

Final EIS

9-4 Your comment is noted, and the text in the DEIS at 4-36 has been modified accordingly.

9-5 Your comment is noted, and the text in the DEIS at 4-40 has been modified accordingly.

9-6 Please refer to the response to comment 2-19.

LETTER 10. THE DESERT PROTECTIVE COUNCIL, INC.**THE DESERT PROTECTIVE COUNCIL, INC.**

A NON-PROFIT ORGANIZATION

P.O. BOX 2312 • VALLEY CENTER • CALIFORNIA 92082

DESERT PROTECTIVE COUNCIL**ADVISORY PANEL**SYLVIA BRIDGEMONT
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BiologistKAREN SALZMAN
Surface DirectorROBERT STERNBERG
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Professor of BiologyFRANK WHEAT
BiologistANTHONY WILSHIRE
Biologist

Bureau of Land Management
Carson City Field Office
5665 Morgan Mill Road
Carson City, Nevada 89701
Attn: Terri Knutson, EIS Project Mgr.

November 9, 1997

Re: Alta Gold Co. Olinghouse Mine Project in Pah Ra Mountains

Dear Ms. Knutson:

The Desert Protective Council (DPC) has serious concerns about Alta Gold's proposed development of an open pit cyanide heap leach gold mine in the Pah Ra Mountains. The drainage from the mine operations enters a canyon which flows toward the Truckee River less than six miles from the proposed mine and upgradient from Pyramid Lake. The proposed plan of operations would include two 500 ft deep pits which would extend to 90 feet below the top of the existing groundwater table. The creation of pits excavated below the groundwater table would necessitate dewatering a portion of the Dodge Flat aquifer during operations and would result in creation of a pit lake after completion unless backfilling is required.

Both groundwater and surface waters are extremely important resources for the long-term survival of both people and wildlife habitat in the arid west. If Alta's proposed mine project doesn't provide enough threats to groundwater resources, the potential/probable future proposals for expansion to include a major portion of Alta's 9100 acres of holdings would result in continued and expanded production beyond the proposed two pits for five years. (Alta's Web page information provides basis for anticipated proposals for expansion.) Such expansion would increase potential off-site impacts on both groundwater, surface waters, and wildlife habitat in addition to directly destroying much habitat for wildlife.

Dewatering and potential contamination of the Dodge Flat aquifer for the short term profits of a company operating a cyanide heap leach mine will have potential long-term adverse economic impacts on the cities of Wadsworth and Fenley which depend on this aquifer. As Southern California has learned, there are limits to the seemingly endless supply of available surface water in the Colorado and other rivers for exploitation/economic development. The Colorado River is overappropriated and so is the Truckee River. Therefore, it is increasingly important to afford every possible protection the remaining available water resources for future generations and for wildlife habitat.

To safeguard for wise and reverent use by this and succeeding generations these desert areas of unique scenic, scientific, historical, spiritual and recreational value, and, to educate children and adults to a better understanding of the deserts

10-1 Accordingly, because of the anticipated proposals for future mine expansion, BLM must address the cumulative impacts of all reasonably foreseeable projects including the probable proposals for expansion based on information available from the project applicant. Those impacts include increased groundwater impacts resulting from additional dewatering, creation of pit lakes, surface and groundwater contamination, loss of wildlife habitat and potential negative impacts of water quality affecting aquatic habitat for threatened Lahontan cutthroat trout and endangered cui-ui fish. The piecemealing of major mining projects and failure to address in a meaningful manner the potential/probable cumulative impacts of such mining projects is not in the American public's interest in protection of the nation's water resources and wildlife habitats, and it is not consistent with the mandates of NEPA.

Gold is not a strategic metal, nor is it in short supply. The recent book, *Golden Dreams, Poisoned Streams* published by the Mineral Policy Center documents the environmental damage done by mining operations, including those in the arid west. From this book, we conclude that given present practices and the present track record, when things can go wrong, eventually they will. Therefore, some sites are inappropriate for massive deep pit operations.

10-2 A review of mining operations elsewhere in the arid southwest convinces us that a part of any mining operation must be the successful reclamation and restoration of the site for future generations. Complete backfill should be mandated, together with meaningful restoration of perennial vegetation of the site with reclamation/restoration success determined by annual monitoring review by an independent team of experts for a minimum period of ten years. These should be accompanied by long-term monitoring of groundwater quality and water levels at appropriate distances from the proposed mine operations. Financial assurance bonds should be in effect for several decades after cessation of mine operations to cover remediation of long-term groundwater impacts which may be slow to detect and/or remedy. Problems associated with mining practices and absence of adequate financial bonds have contributed to mine sites becoming super-fund sites, a financial burden on the taxpayers. That should not be allowed to happen here.

Accordingly, DPC respectfully requests preparation of a Revised Draft EIS addressing these issues to be recirculated for the full comment period. Thank you for the opportunity to comment on Alta Gold Company's Olinghouse Mine Project proposal. Please send copies of all documents to the address below.

Sincerely,



Edie Harmon for DPC
P.O. Box 444
Ocotillo, CA 92259

10-1 Please refer to responses to comments 3-1 and 3-3.

10-2 Please refer to responses to comments 1-18, 2-62, and 2-65.

LETTER 11. SIERRA NEVADA CARDIOLOGY ASSOCIATES

11-1

Please refer to the responses to comments 3-1 and 3-3.



**SIERRA NEVADA
CARDIOLOGY
ASSOCIATES**

75 Pingle Way, Suite 401, Reno, NV 89502 • 702-686-800
Business Office • 1000 Ryland Street, Suite 210, Reno, NV 89502 • 702-686-8130
Fax (Pingle): 702-686-8031 • Fax (Ryland): 702-686-8137

11/16/97

YSLM

Carroll's Full Office
5665 Mason Mill Road
C.C. NV.

8-9-97

Dear Terri Knecht, EIS Project Manager:

11-1

Please analyze development of all of other
wells and don't "pioneer" this mine (Orehouse
mine project).

I really feel Nevada doesn't need another Carson
Truckee mining development with around huge lakes and
deep open pits within miles of the Truckee River just upstream
from Pyramid Lake.

Sincerely,

Colin M. Fuller MD

Krista M. Arger, M.D. • Stephen S. Bence, M.D., F.A.C.C. • Richard H. Bryan, Jr., M.D. • Basil F. Chryson, M.D. • Christopher J. DiPaola, M.D., F.A.C.C.
Eric M. Drummer, M.D., F.A.C.C. • Colin M. Fuller, M.D., F.A.C.C., F.A.C.P. • Francis P. Kelley, M.D., F.A.C.C. • Candace M. McNulty, M.D., F.A.C.C.
Michael J. Newmark, M.D., F.A.C.C., F.S.C.A.I. • Donald A. Spring, M.D., F.A.C.C., F.A.C.P., F.A.S.C.I. • Gerald H. Whipple, M.D., F.A.C.C., F.A.C.P.

LETTER 12, M. HULTIN

12 Thank you for your letter.

BUREAU OF LAND MANAGEMENT
CLASSIFIED
DATE 12/10/00

M. HULTIN
2270 KIMO EDWARD DR.
RENO, NV 89503
(702) 747-5507

Nov 11 10:15 AM '97

11.13.97

Bureau of Land Management
Carson City Field Office
Attn Terri Knutson, EIS Project Manager
5665 Hobbs Hill Road
Carson City, NV 89701

I am deeply concerned about the Alta Gold Co's proposal of developing the Olinghouse district. According to their Web Page it seems it will be a project that will go on for many years and involve a great area and surely will play havoc with the water supply, aquifers and greatly endanger the Truckee river and Pyramid lake which are finally recovering. It would be a great tragedy for the wonderful birdlife of Pyramid if the fish would be affected by the leakage of cyanide. Please consider this proposal with utmost care.

Sincerely,

Terri Knutson

LETTER 13, BRENDA MORROW

13-1 Please refer to the responses to comments 1-1 and 1-13.

BUREAU OF LAND MANAGEMENT
2125C
DISTRIBUTION

Nov 17 10 43 AM '97

Bureau of Land Management
Carson City Field Office
Attn: Terri Knutson, EIS Project Manager
5665 Korgan Mill Road
Carson City, NV 89701

I am writing regarding Alta Gold's Olinghouse Mine Project. I believe from their WEB page description that they are planning a very extensive mining project in the Fah Rah Mountains. I am very concerned about the future of the water in the Truckee River due to this project.

13-1

Also, it seems like the fish in the Truckee and at Pyramid Lake would be negatively impacted due to the cyanide pools that would be formed. Therefore I feel like this project should not be allowed on public land.

Thank you for your attention.

Sincerely,

Brenda Morrow
121 E. U. St
Hawthorne, NV 89415

LETTER 14. LOUISE BAYARD-DE-VOLO

14-1 Please refer to the responses to comments 3-1 and 3-3.

November 12, 1997

BUR OF LAND
CLERK
CUSTODY
NOV 17 10 43 AM '97

Bureau of Land Management
Carson City Field Office
5665 Morgan Mill Rd.
Carson City, NV 89701

Attn: Terri Knutson

Re: Alta Gold Mine Proposal - Pah Rah Mountains

Dear Ms. Knutson:

14-1

The open pit mine proposed by Alta Gold for the Pah Rah Mountains brings great concerns about dewatering of the area and contamination of Truckee River water. By approaching this in a piecemeal fashion, the overall impact is masked. This open pit, cyanide heap leach mine will be growing larger and deeper and have more dramatic effects as the project develops in the future. It is important that the overall impact be analyzed now, not just this first small portion.

Very truly,



Louise Bayard-de-Volo
Box 285
Verdi, NV 89439

LETTER 15. PYRAMID LAKE PAIUTE TRIBE

OLINGHOUSE MINE PROPOSAL
COMMENTS REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Please return your comments to:

Bureau of Land Management
Carson City Field Office
Attn: Olinghouse Project Manager
5653 Morgan Hill Road
Carson City, NV 89701

10/21/97
Name: CRAIG C DOWNER, Environment
Address: Pyramid Lake Paiute Tribe
PO Box 256
Nixon NV 89424 Tel 702-574-1000 ext 109

Comments: See pit remaining as a potential death trap for animals such as deer coyotes attracted during critical dry periods. may go for a drink, be unable to get back out. I am concerned about this ash. That this situation be remedied.
15-1
15-2 Also concerned about the cumulative effects of soil disruption resulting in particulate pollution in this already impacted area.
Please continue on back

Will comment on the draft on behalf of Tribe.

15-1 There are numerous seeps and springs in the vicinity of the proposed project area that wildlife already uses; however, if animals should utilize the proposed pit lake for watering there is no reason to believe they would be trapped. These animals are all capable of negotiating slopes as steep and rough as the sides of the pit.

15-2 Construction and operation of the proposed mine would not result in the violation of PM₁₀ standards (DEIS at 4-3).

OLINGHOUSE MINE PROPOSAL
COMMENTS REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Please return your comments to:

Bureau of Land Management
Carson City Field Office
Attn: Olinghouse Project Manager
5665 Morgan Hill Road
Carson City, NV 89701

Name: Vivian Olds

Address: PO 547
Wadsworth NV 89702

Comments: As a resident of Wadsworth,
I oppose this coal mine. I did not
feel my questions concerning
safety of chemical use & ground
water were answered by
people whose interests were not
well motivated.

at your 'meeting' Oct 21, when
we environmental groups as
Green Peace & Citizens alert? The
'Fat Cats' from Alta were a
far as far as being
unlawfully - the 'water' person
admitted she wasn't concerned
because she didn't live here -

Please continue on back

Thanks alot
lady! -

She said a well was being drilled
at 700 FT & it wouldn't affect the
aquifer! Of course it will!

Chemical spills of a toxic nature
were dismissed by Aeta with a
comment "people die in car wrecks
all the time." Very poor

perhaps the painters will remember
Pah Rah is a sacred mountain &
the gold mine will be stopped.

I do not want the pollution,
& destruction & lack of value of a
life in my community.

LETTER 17. GREAT BASIN COMMUNICATIONS

BUREAU OF LAND
MANAGEMENT
DISTRICT

BUREAU OF LAND
MANAGEMENT
DISTRICT

OLINGHOUSE MINE PROPOSAL
COMMENTS REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

October 22, 1997

Please return your comments to:

Bureau of Land Management
Carson City Field Office
Attn: Olinghouse Project Manager
5665 Morgan Mill Road
Carson City, NV 89701

Name: Great Basin Communications/Gene E. Oakley, President

Address: POB 7786
Reno, NV 89510
702/825-2626

On behalf of Great Basin Communications I wish to
offer the following comments regarding the Olinghouse
Comments: Mine Proposal.

1. As an adjacent land owner, we wish a stipulation
to be added insuring that the jeep trail which
provides access to our communications site be
17-1 kept open for our ingress and egress (N-52282).
The road must kept free of any obstacles or
driving hazards so that we and our customers
may reach our communications site in a timely
manner.

2. Buried and Overhead Powerlines:
We own buried and overhead powerlines that are
17-2 within the area to be mined and on the perimeter
of the same area. It is very important the no
excavation be made near the buried line and no
Please continue on back

17-1 Mitigation has been added to ensure the access road to the communication site is kept open and free of hazards. Please refer to Section 5.8 of this FEIS.

17-2 Mitigation has been added to ensure protection for the power lines and provide for notification to Great Basin Communications prior to work scheduled in the vicinity of the power lines. Please refer to Section 5.9 of this FEIS.

↓
17-2 heavy truck traffic be allowed over the top of the same line unless special precautions are taken. We wish to be notified prior to any truck or heavy equipment traversing over our powerline.

Due care must be exercised near the overhead line so that the line is not compromised in any way. An example would be excavation near the poles or under the powerline.

These stipulations should be included in Alta's Mining Permit.

LETTER 18, MELONIE SMITH

18

Thank you for your letter.

OLINGHOUSE MINE PROPOSAL
COMMENTS REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Please return your comments to:

Bureau of Land Management
Carson City Field Office
Attn: Olinghouse Project Manager
5665 Morgan Mill Road
Carson City, NV 89701

Name: Melanie Smith
Address: PO Box 366 - 700 Railroad Circle
Wadsworth, NV 89442

Comments: I would not like to
live around anything dangerous
if moved here for a purpose, it
be away from all other crops

Please continue on back

Don CF L.L. 19
1970
1970

OLINGHOUSE MINE PROPOSAL
COMMENTS REGARDING THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Please return your comments to:

Bureau of Land Management
Carson City Field Office
Attn: Olinghouse Project Manager
5665 Morgan Mill Road
Carson City, NV 89701

Name: Jerry D. Allen
Address: P.O. B. 613 Fernley NV. 89408

Comments: Being a retired senior
Citizen living in Wadsworth NV
and being very knowledgeable in the
mining industry and its safety
record I have no protest of the
Olinghouse project.

Also I understand the need
for industry workers to provide
senior citizens their entitlements
I.E. social security - Medicare -
Medicaid - transportation - Food
ETC. Please let the project
go forward

Jerry D. Allen

Please continue on back

LETTER 20. NEVADA LAND & RESOURCE COMPANY, LLC

NEVADA LAND & RESOURCE COMPANY, LLC

1755 E. PLUMB LANE SUITE 151

RENO, NEVADA 89502

Telephone: (702) 329-3872

Facsimile: (702) 329-5253

20-1 Roads used by Alta would be maintained. Compensation from Alta is beyond the scope of the EIS, and all such agreements are between the two parties.

November 4, 1997

Attn: Terri Knutson, EIS Project Manager
Bureau of Land Management
Carson City Office
5665 Morgan Mill Road
Carson City, NV 89701

Subj: Olinghouse Mine Project

Dear Ms. Knutson:

Nevada Land & Resource Company (NLRC) owns private property in the vicinity of the project area; specifically the private property is legally described as Sections 23, 25, 27, 33, 35 of 21N-23E and portions of Sections 19 and 31 of 21N-24E.

20-1

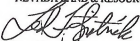
While NLRC supports this project, we want to be assured that our existing property rights and property values are not diminished in any way. NLRC wants its existing rights of ingress and egress to our property maintained throughout life of the project and wants to be compensated for any ingress and egress by ALTA Gold across NLRC property, whether it be for mine operations or for utility purposes. NLRC also owns certain water rights appurtenant to our property and do not want those rights or the value thereof diminished in any way as a result of this project.

NLRC wants to be assured that the process area in Section 32 as depicted in Figure 2.2 of the Draft EIS dated September 12, 1997, does not contaminate neighboring NLRC property in Section 33, 21N-23E.

Thank you for the opportunity to comment in support of this project.

Sincerely,

NEVADA LAND & RESOURCES


Ted Fitzpatrick

LETTER 21. NEVADA LAND & RESOURCE COMPANY, LLC

NEVADA LAND & RESOURCE COMPANY, LLC

1755 E. PLUMB LANE SUITE 151

RENO, NEVADA 89502

Telephone: (702) 329-3322

Facsimile: (702) 329-5253

November 5, 1997

Attn: Terri Knutson, EIS Project Manager
Bureau of Land Management
Carson City Office
5665 Morgan Mill Road
Carson City, NV 89701

Dear Ms. Knutson:

I attended a public hearing last night on the Olinghouse Mine Project held by the Washoe County Planning Commission. As such I am providing you additional comments on the Draft EIS for this project. As you know, Nevada Land & Resource Company (NLRC) owns private property identified in the EIS project area; specifically the private property is Section 33, 21N-23E, other property NLRC owns nearby is described as Sections 23, 25, 27, 35 of 21N-23E and portions of Sections 19 and 31 of 21N-24E. This ownership position makes NLRC a significant property owner in the project area, however NLRC has no arrangement with Alta Gold for the use of NLRC's property and is very concerned that Alta's operations will adversely affect NLRC's property values.

Specifically, NLRC is concerned about environmental contamination of its property surrounding the cyanide process area on the east, west and south borders of Section 32. An example of our concern is what happened at Hog Ranch a few years ago. As an added protection to NLRC's property, NLRC feels strongly that the cyanide process area should have a minimum set back requirement of 500' from the exterior section line of Section 32, 21N-23E, as well as having groundwater monitoring wells installed in potentially affected areas, with sufficient security bonding in place to remediate any spills or subsurface contamination. Additionally, Alta Gold should perform condemnation drilling of any areas that are to be buried by waste, ponds or leach pad facilities.

Sincerely,


Ted Fitzpatrick

21-1 Agreements are being secured between Alta and NLRC.

21-2 The process area would be located 250 feet, at the narrowest, from Section 32. The potential for spills has been mitigated with the construction of a larger event pond (please refer to response to comment 1-1). Monitoring and mitigation measures for water resources are described in Section 4.4.4 of the DEIS at 4-13.

LETTER 22, NEVADA LAND & RESOURCE COMPANY, LLC

NEVADA LAND & RESOURCE COMPANY, LLC

1755 E. PLUMB LANE SUITE 151
RENO, NEVADA 89501
Telephone: (702) 329-5122
Facsimile: (702) 329-5253

BOOK OF LETTERS

LETTER 22

November 13, 1997

Attn: Terri Knutson, EIS Project Manager
Bureau of Land Management, Carson City Office
5665 Morgan Mill Road
Carson City, NV 89701

Via Fax 702-885-6147

Dear Ms. Knutson:

The following are my comments on the Draft Environmental Impact Statement for ALTA Gold's Olinghouse Mine Project. Nevada Land & Resource Company owns land adjacent to the project area and our land has valuable development potential. Specifically, our land next to the project is described as Sections 31 and 33, T21N-R23E, Section 1, T20N-R22E and Section 5, T20N-R23E. Therefore, any detrimental effects from the proposed project will adversely affect the value of our assets and our ability to develop them.

22-1

To protect our property from possible environmental degradation, special precautions such as boundary set-backs, conservation easements and the installation of groundwater monitoring wells should be operational requirements for ALTA Gold. Further, ALTA Gold should compensate Nevada Land & Resource Company for the loss in value of our property due to this operation and for the use of our property for ingress and egress.

22-2

Finally, we are progressing in mining our private lands and utilizing our associated water rights. As such we are concerned about whether or not there is an adequate water supply for ALTA's project as their well is located in close proximity to three of ours. Our water rights are senior to ALTA Gold's and our pumping for our project will likely affect their supply.

Please make sure these comments receive the consideration they deserve when preparing the Final Environmental Impact Statement. Thank you.

Sincerely,

NEVADA LAND & RESOURCE COMPANY, LLC

Al Parker

22-1 Please refer to response to comment 21-1.

22-2 The State Water Engineer is responsible for determining water rights.

LETTER 23. CONSTANTINA ECONOMOU

10 Panoramic Way
Berkeley, CA 94704
November 7, 1997

Bureau of Land Management
Carson City Field Office
Attn: Terri Knutson, EIS Project Manager
5665 Morgan Mill Road
Carson City, NV 89701

Dear Terri Knutson:

I am writing to ask you to reject Alta Gold Co.'s proposal to develop an open pit, cyanide heap leach gold mine in the Pah Rah Mountains, 30 miles east of Reno, NV and 15 miles south of Pyramid Lake. Drainage from the proposed mine would flow to the Truckee River less than six miles from the mine.

- 23-1 This mine will exacerbate dewatering of the Dodge Flat aquifer and increase the amount of water recharged into the Truckee River which is already overappropriated. The dewatering with only further endanger the Lahontan cutthroat trout and the endangered cut-uf and will eliminate bighorn sheep habitat. This area is
- 23-2 seismically active heightening the chance polluting the River.

- 23-3 The DEIS for the mine mentions that the mine in the proposal is only the beginning. THE BLM MUST CONSIDER THE EFFECTS OF ALL REASONABLY FORESEEABLE FUTURE MINING ACTIONS IN THIS CRITICAL AREA. This mine would further endanger the Truckee
- 23-4 River which is already threatened by cyanide heap leach mining and deep open pits of mining effluent within miles of the River. Please do your best to protect this critical Great Basin resource.

Sincerely,

Constantina Economou
Constantina Economou

- 23-1 Please refer to the responses to comments 1-1, 1-13, and 3a-33 through 3a-45.
- 23-2 Please refer to the responses to comments 1-1 and 1-5.
- 23-3 Please refer to response to comments 3-1 and 3-3.
- 23-4 Please refer to the responses to comments 1-1, 1-13, and 3a-33 through 3a-45.

LETTER 24, DAVID VON SEGGERN

24-1 Please refer to response to comments 3-1 and 3-3.

10/27/97

6

12

12/12/97

401 College Dr. #127
Reno NV 89503
November 11, 1997

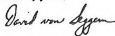
BLM, Carson City Field Office
5665 Morgan Mill Rd.
Carson City NV 89701

Dear Ms. Knutson:

24-1

I am writing in regard to the DEIS on the Alta Gold proposal in the Pah Rah Mountains. I will not comment on details of this EIS because I feel that it fails to address the real scope of the project, as evidenced by Alta Gold's extensive holdings in this area. This proposal only represents a small portion of an eventually huge mining project with potentially great impact. Perhaps the developer is within the regulations to request approval of this initial project, but it behooves them to be forthright and present the full scope. Moreover, it is the BLM responsibility to look at the full scope and not just an initial small piece. I strongly urge the BLM to consider the full scope. This project may have very detrimental effects on the Truckee River system after many years when the mine has reached its potential. I am very concerned that the hard-won agreements to preserve a clean and adequate flow of water to Pyramid Lake may be jeopardized by this mine.

Sincerely yours,



David von Seggern

LETTER 25, WAYNE L. MOMERAK AND GAYE W. MOMERAK

25-1
25-2
25-3

25-1
25-2
25-3

11804 Osage Road
Reno, Nevada 89506
November 9, 1997

Bureau of Land Management
Carson City Field Office
Attn: Terri Knutson, EIS Project Manager
5665 Morgan Mill Road
Carson City, NV 89701

Dear Sirs:

We are writing to express our concerns about the Alta Gold Company plans for the Olinghouse Mining District. It is our contention that Nevada does not need a mining development with cyanide leaches and deep open pits in close proximity to the Truckee River and upstream from Pyramid. Both of these bodies of water are troubled enough from overuse and pollution without adding the effects of mining practices that are concerned only with short-term profits and give no concern to the environmental destruction that such practices cause.

- 25-1 Future development of this site would eliminate bighorn sheep habitat and cause severe problems for the Dodge Flat aquifer, a primary source of water for Wadsworth and Fernley. The potential for cyanide and other pollutants being spilled into the Truckee and the groundwater supplies is significant.
- 25-2 This would further jeopardize the threatened and endangered species in the river and Pyramid Lake.
- 25-3

Please do not piecemeal this project. It is critical that the long-term destruction caused by mining projects of this kind be taken into consideration. It is our hope that you will carefully analyze the potential for serious, long-term environmental catastrophes that can occur with projects of this nature.

Sincerely yours,

Wayne L. Momerak
Gaye W. Momerak
Wayne L. Momerak
Gaye W. Momerak

- 25-1 Please refer to the response to comment 2-40.
- 25-2 Please refer to the responses to comments 3a-33 through 3a-45.
- 25-3 Please refer to the response to comment 1-1.

LETTER 26, JAMES E. HARMON

26-1
26-2

James E. Harmon
P.O. Box 444
Ocotillo, CA 92259
Nov 12 1997

Dear People 11/12/97

This letter provides comment on the Alta Gold Company's proposal to develop in the Olinghouse Mining District an open-pit, cyanide heap-leach gold mine in the Piute Range mountains 30 miles east of Reno, Nevada and 15 miles south of Pyramid Lake. Drainage from the mine will flow into the Truckee River, which is less than 6 miles from the mine.

(1) This proposal is poorly conceived, (2) avoids the truth, (3) will cause highly significant environmental damage, and (4) is distinctly unnecessary.

(1) It is poorly conceived because it is too close to Reno, Pyramid Lake, and the Truckee River. Of course, there is gold there, but the danger of various pollutants and disturbances far outweigh the dollars to be wrung out of the project.

(2) It avoids the truth because Alta obviously has plans for enormous (and illegal) "pre-mining" of the project. Their "sucker bait" for investors on the Web page displays a multi-layered lack of candor.

(3) It will cause environmental degradation because the destruction inherent in contemporary open-pit mining is painfully obvious to anyone who has seen one from above or on foot. According to Amory Lovins in his book Open Pit Mining, commenting on this new technology, he notes that the Deepor method open-pit mine may occupy a smaller area than a shallower stripping mine "but its damage is more lasting." The contamination of the over-appropriated Truckee River and the debasing of Hedge Flat aquifer are

26-1

Please refer to response to comments 3-1 and 3-3.

26-2

Please refer to the responses to comments 1-1 and 3a-33 through 3a-45.

No sensitive plant species occur on the project area.

26-2 | two likely outcomes of this project. Sensitive flora and
26-3 | fauna would also be on the list - list.

(4) This mine is a distinctly unnecessary project in view of its deleterious effects on the environment. Gold is not a strategic metal. Fort Knox is loaded with it, as also are American pawnshops. The Swiss are liquidating their stocks of it. In today's market about 85% of the gold is used in jewelry. For over a million years mankind lived a satisfying life without it.

Back in 1973 Amory Lovins in his work entitled Open Pit Mining Earth Treas London offered these thoughts that I hope will bring enlightenment to anyone reading my comments.

The remarkable engineering feats of modern open-pit mining are not yet quite scraping the barrel, but they are getting closer every year. If we keep that new power firmly in check with an understanding and discipline now lacking, we may yet, for many centuries, have a barrel left. Our grandchildren will then have one reason less to ask how rational people could possibly have behaved as we, heedless of their welfare, are behaving now.

p. 100

I urge BLM to carefully analyze this proposal and then deny it. But, if the decision follows the typical pattern, and the proposal is approved, then I suggest that you get ready for the ceaseless drizzle of project expansions, and consequent frittering away of any meaningful reclamation and restoration.

James E. Harmon

**LETTER 27, NEVADA DEPARTMENT OF CONSERVATION AND NATURAL
RESOURCES, DIVISION OF WATER RESOURCES**

BOB MILLER
Governor

STATE OF NEVADA



PETER G. MORRIS
Director

R. MICHAEL TURNIPSEED 27-2
P.E. State Engineer

**DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES**

123 W. Nye Lane, Suite 246
Carson City, Nevada 89706-0818
(702) 687-4380 • Fax (702) 687-6972

November 4, 1997

NEVADA STATE CLEARINGHOUSE
E1998-044
OLINGHOUSE MINE PROJECT

Alta Gold Company owns no water rights within Dodge Flats. However, adequate rights exist in the name of Robert I. Cowles to pump the anticipated needed volume from the indicated existing well. An application to change the place of use of a portion of Mr. Cowles right will likely be required.

Pit dewatering will require permit(s) to appropriate groundwater from this office. All water diverted from the source is required to be placed to beneficial use and may not be allowed to flow to waste. The dewatering should support mining activities before water is imported from the alluvial aquifer well.

The storm event pond is 17.4 acre-feet in working capacity. The State Engineer considers capacity to the top of the embankment for the purposes of permitting. The pond site should pose no more than a significant hazard potential.

Since the relationship between the springs in the area and the aquifer(s) to be intercepted by the pit is not known, all of the springs in the area must be monitored for unusual reduction in flow. Those springs on which permits or certificates for water use exist must be mitigated for if the customary use of water by the permittee is denied by dewatering. If a permanent change is made in the area's spring regime by dewatering, the operator will be required to mitigate the loss.

No charting of spring location, flow rate and water right status appeared in the EIS. The State Engineer considers this information to be critical in assessing the potential impacts to the springs in the area. Base flow conditions at the springs through at least one full year are necessary to determine if unusual reductions in flow have occurred. In the absence of base-line data, claims against the operator for reduction in flow would have to be assumed to be correct.

Sincerely,

Michael J. Anderson
Staff Engineer III

27-1

Springs in the area are currently monitored and have been since October 1996. Please refer to Monitoring and Mitigation Measures at 4.4.4, page 4-11 of the DEIS. Quarterly reports are available in the BLM Carson City Field Office.

Please refer to response to comment 27-1.

**LETTER 28, NEVADA DEPARTMENT OF BUSINESS AND INDUSTRY,
DIVISION OF MINERALS**

28

Thank you for your letter.



BOB MILLER
Governor

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF MINERALS

360 W. King Street, Suite 106

Carson City, Nevada 89710

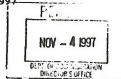
<http://www.state.nv.us/business/industry/mineral/mineral.htm>
(702) 687-5050 • Fax (702) 687-3957

LEE WEADE BRANCH
2501 E. Sahara Avenue
Suite 206
Las Vegas, Nevada 89104
(702) 486-4343
Fax (702) 486-4345

CLAUDIA K. CORMEY
Director

RUSSELL A. FIELDS
Administrator

November 3, 1997



Julie Butler, Coordinator
Nevada State Clearinghouse
Department of Administration, Planning Division
Blasdel Bldg., Room 200
Carson City, NV 89710

Re: Nevada SAI #E1998-044 -- Draft Environmental Impact Statement
(DEIS) -- Olinghouse Mine Project -- Alta Gold Company -- Dues
Date: November 7, 1997.

The Nevada Division of Minerals appreciates the opportunity
to review and comment on the DEIS for Alta Gold Company's proposed
Olinghouse Mine project.

This Olinghouse project will be a significant benefit to the
people of Washoe, Lyon, and Storey Counties in terms of sales,
employment, and revenue generation. This is an excellent small to
medium-sized property that will employ the benefits of the most
modern technology in re-visiting a mining district that has been
active off and on for nearly 140 years.

One of the Division's interests is abandoned mine public
safety. We feel that the description of berming and signage of the
open pit and reclaimed access roads, found in Section 2.1.8 -
Reclamation, is very adequate and fulfills the requirements set
forth in NAC Chapter 513.

We are pleased with the discussion of bat habitat and
mitigation measures found in Section 2.1.9 - Environmental
Protection and Monitoring. It appears that every effort will be
made to protect and provide for bat habitat whenever possible.

The Olinghouse Mine Project has the full support of the
Division of Minerals.



Nevada Department of Business & Industry

**LETTER 29, NEVADA NATURAL HERITAGE PROGRAM, DEPARTMENT
OF CONSERVATION AND NATURAL RESOURCES**

NOV 6 1997

Department of Administration
Budget and Planning Division
209 East Musser Street, Room 200
Carson City, Nevada 89701-4268
(702) 587-4387
fax (702) 587-3965

RECEIVED SEP 19 1997

DATE: September 16, 1997

Governor's Office
Nuclear Projects Office
Business & Industry
Agriculture
Energy
Minerals
Economic Development
Tourism
Fair Market
Human Resources
Aging Services
Health Services
Indian Commission
Colorado River Commission

Legislative Council Bureau
Communications Bldg
Exp. Training & Rehab Research Div.
PSC
Transportation
UNR Bureau of Sales
UNR Library
UNLV Library
Historic Preservation
Emergency Management
Washington Office

Conservation/Natural Resources
Director's Office
State Lands
Environmental Protection
Forestry
Wildlife
Region 1
Region 2
Region 3
Conservation Districts
State Parks
Water Resources
Water Planning
Wild Horse Commission

Nevada SAJ # E1998-044

Project: Draft EIS - Olinghouse Mine Project, Washoe County

☒ Yes ☐ No Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:

10/16/97 (10/16/97) 10/16/97

Enclosed, for your review and comment, is a copy of the above mentioned project. Please evaluate it with respect to its effect on your plans and programs the importance of its contribution to state and/or local statewide goals and objectives, and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than SEPTEMBER 1, 1997. Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAJ number and comment due date for our reference. Please contact Julie Butler, Clearinghouse Coordinator if you have any questions (867-4307).

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

☐ No comment on this project ☐ Conference desired (See below)
☐ Proposed supported as written ☒ Conditional support (See below)
☒ Additional information below ☐ Disapproval (Explain below)

AGENCY COMMENTS:

Comments attached to this sheet.

James D. Morefield
Signature

Natural Heritage
Agency Date 11/6/97

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Nevada Natural Heritage Program

Department of Conservation and Natural Resources
1550 East College Parkway, Suite 145 • Carson City, Nevada 89706-7921
(702) 687-4245

4 November 1997

Comments on Nevada SHIP #1998-0441: Draft EIS - Olinghouse Mine
Project, Washoe County
Comment due date November 7, 1997.

- 29-1 1. Because of the potentially devastating and irreparable biological harm that could result from a toxic runoff event reaching the Truckee River or Pyramid Lake, we request that runoff containment measures be sufficient to render such an event impossible.
- 29-2 2. We commend the proponent and agency for apparently attempting to use an all-native reclamation seed mixture. We cannot be sure, however, because scientific names of the plant species were omitted in Table 2.7; please include these in the FEIS. We do not know what "Pacific Aster" is.
- 29-2 3. Regarding the reclamation seed mix, the natural range of Palmer Penstemon, while native to Nevada, does not include the project area, and artificial establishment of a population there has the potential to eventually contaminate a naturally rare variant (Penstemon palmeri var. macranthus) in adjacent Pershing and Churchill counties via hybridization. We request use of one or more substitute species that occur(s) naturally in the project area.
- 29-3 4. Section 4.6.4 (p. 4-17), should detail Alte's expertise and qualifications for successful monitoring and detection of noxious weed invasions, or ensure that these actions will be performed by properly qualified individuals. There should also be a reclamation option to include some appropriate non-persistent exotic species in the reclamation seed mix in the event these are needed to help suppress invasions of unwanted exotic species until native vegetation becomes established.

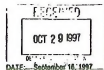
29-1 Please refer to the response to comment 1-1.

29-2 The BLM is committed to the use of native seed mixtures whenever possible. The Pacific aster is *Aster chilensis*. The BLM considers inclusion of the scientific names in the document extraneous and unnecessary. Palmer penstemon has been removed from the seed mix and replaced with wild lupine (*Lupinus perennis*) at 5 lbs pls/acre (see Section 5.10 of this FEIS).

29-3 Monitoring of revegetation is performed by the BLM and the proponent. The standard mitigation and monitoring requirements, specified in the BLM Nevada Weed Management Strategy, would be included in the mitigation. Please also see Sections 5.4 and 5.7 of this FEIS, which discuss noxious weed control and revegetation test plots.

LETTER 30, HISTORIC PRESERVATION

30-1 Section 106 consultation would be completed prior to signing of the ROD.



NEVADA STATE CLEARINGHOUSE

Department of Administration
Budget and Planning Division
200 East Musser Street, Room 200
Carson City, Nevada 89701-4298
(702) 687-6387
fax (702) 687-3645

RECEIVED
SEP 17 1997

State Historic
Preservation Office

Governor's Office
Nuclear Projects Office
Business & Industry
Agriculture
Energy
Minerals
Economic Development
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Fire Marshal
Human Resources
Aging Services
Health Division
Indian Commission
Colorado River Commission

Legislative Counsel Bureau
Communications Bd
Emp. Training & Rehab Research Dir.
PSC
Transportation
Utah Bureau of Mines
Utah Library
Utah Valley Library
Utah State Office
Utah State Office
Washington Office

Conservation/Natural Resources
Director's Office
State Lands
Environmental Protection
Forestry
Wildlife
Region 1
Region 2
Region 3
Conservation Districts
State Parks
State Museum
Water Planning
Natural History
Wild Horse Commission

Nevada SAV # E1998-046

Project: Draft EIS - Olinghouse Mine Project, Washoe County

☒ Yes ☐ No Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:

QUESTIONS FOR AGENCY:

Enclosed, for your review and comment, is a copy of the above mentioned project. Please evaluate it with respect to its effect on your plans and programs, the importance of its contribution to state and/or local statewide goals and objectives, and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than **November 11, 1997**. Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAV number and comment due date for our reference. Please contact Julie Butler, Clearinghouse Coordinator, if you have any questions (887-6387).

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

☐ No comment on this project
☐ Approval suggested as written
☐ Additional information below

☐ Conference desired (See below)
☐ Conditional support (See below)
☐ Disapproval (Explain below)

30-1

AGENCY COMMENTS:

As indicated in this document, consultation for this undertaking is not complete. When does the BLM plan to complete this consultation and submit its determination of project effect? Will this occur prior to the preparation of the final EIS?

Patricia Dale
Signature

Historic Preservation
Agency Date 10/28/97

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Olinghouse Mine Project Final EIS

LETTER 31, JULIE DUDLEY

NOV-13-97 14:09 FROM:ORCH

ID:

PAGE

Julie Dudley
1427 E St.
Sparks, NV 89431

November 13, 1997

Bureau of Land Management
Carson City Field Office
Attn: Terri Knutson, EIS Project Manager
5665 Morgan Mill Rd.
Carson City, NV 89701
Fax: (702) 885-6147
1 Page

Dear Terri:

I am writing to request that the BLM seriously review all of the foreseeable future cumulative impacts of Alta Gold Company's proposed Olinghouse Mine Project. After discussing the proposed Olinghouse project DEIS with local experts, it is painfully obvious that cumulative, negative impacts being deemed as minimal will, over time, notably increase. The BLM is not serving the public interest and minimizing the long-term issues surrounding this project.

The Olinghouse project, proposed by Alta, would develop an open pit, cyanide leach gold mine in the Pah Rah mountains. As a property owner of 40 acres in the Pah Rah range, I stand firmly against any mine project in the area, especially along the Truckee River. Ultimately, mine drainage and erosion from the proposed Olinghouse project will flow directly into the river. Do Nevada's need (or want) yet another mining development with cyanide heap leaches and deep open pit mines scarred the land within miles of the Truckee River, just upstream of Pyramid Lake?

- 31-1 My major concerns include not only groundwater contamination, but also long-term destruction of big horn sheep habitat as well as increasingly negative impacts on endangered cut-throat fish and threatened Lahontan cutthroat trout. Olinghouse will not be a 5-year project and the BLM should be honest in its DEIS statement that Alta has increased their land holdings in the area to 9,100 acres, far more than the current project which is described as less than 1,000 acres. This mine could easily be transformed (and most likely will be) into a massive undertaking - five miles long and 1 mile wide - contaminating and destroying more and more habitat as it expands.
- 31-2
- 31-3
- 31-4 The proposed Olinghouse mine will continue to expand if not stopped right now. This expansion will dewater the Dodge Flat aquifer, a source for the cities of Wadsworth and Fernley, and increase the amounts water recharged from the Truckee River (an already overappropriated water source) while augmenting the likelihood of cyanide and other spills into the aquifer and the river. Another valid concern is that Olinghouse is a seismically active area with a 6.4 scale earthquake in 1882.
- 31-5
- 31-6

I would like to receive further reports and mailings regarding this project. Thanks for considering my concerns.

Sincerely,

Julie Dudley
Julie Dudley

- 31-1 Please refer to the responses to comments 1-1 and 3a-33 through 3a-45.
- 31-2 Please refer to the responses to comments 1-13 and 2-40.
- 31-3 Please refer to the responses to comments 3-1 and 3-3.
- 31-4 Please refer to the responses to comments 3a-33 through 3a-45.
- 31-5 Please refer to the responses to comments 1-1 and 3a-33 through 3a-45.
- 31-6 Please refer to the response to comment 1-5.

LETTER 32, PATRICK MULCAHY, K.M. MULCAHY, AND J.C. MULCAHY

104 OF 111
61
MAY 14 1997

P.O. Box 477
Hawthorne, Nevada 89415
November 10, 1997

BUREAU OF LAND MANAGEMENT
CARSON CITY FIELD OFFICE
ATTN: TERRI KNUTSON, EIS PROJECT MANAGER
5665 MORGAN HILL ROAD
CARSON CITY, NEVADA 89701

Dear Terri Knutson:

- 32-1 We are writing in reference to Alta Gold Co. proposal to develop an open pit, cyanide heap leach gold mine in the Pah Rah Mountains 30 miles east of Reno. It appears that BLM should analyze development of all of Alta's holdings in the area and not do it in piecemeal manner. BLM should consider all reasonably foreseeable future impacts as a part of this project and not the small impact of each piece of the project. Common sense can foresee the development will be deeper, much larger, and have many negative impacts on the area. This development could eliminate bighorn sheep habitat and dewater the Dodge Flat aquifer. It would increase the amounts of water recharged from the Truckee River creating negative impacts on the endangered Cut-throat fish and threatened Lahontan cutthroat trout.
- 32-2
- 32-3

Please analyze development of all of Alta's holdings in the area.

Thank you.

Patrick Mulcahy
Patrick Mulcahy

K.M. Mulcahy
K.M. Mulcahy

J.C. Mulcahy
J.C. Mulcahy

- 32-1 Please refer to the responses to comments 3-1 and 3-3.
- 32-2 Please refer to the response to comment 2-40.
- 32-3 Please refer to the responses to comments 1-13 and 3a-33 through 3a-45.

LETTER 33, SIERRA CLUB, CALIFORNIA/NEVADA RCC MINING COMMITTEE



SIERRA CLUB

California/Nevada RCC Mining Committee
P.O. Drawer W, Independence, CA 93526
Stan Haug, Chair. (619)

11/11/97

Bureau of Land Management
Carson City Field Office
Attn: Terri Knutson, BLS Project Manager
5645 Morgan Hill Road
Carson City, NV 89701

Dear Sir:

These comments are in reference to the Draft Environmental Impact Statement (DEIS) for Atlas Gold's proposed Olinghouse Mine project east of Reno.

- 33-1 Pit, we are concerned with the present plan which proposes open pits up to 500' deep. Will these be backfilled, and if not, why not? If these open pits are not backfilled, and because they will extend below the water table, what will be the water quality of the lake(s) which will be formed after mining? What will the water loss from the surface of these lake(s) be? During and after mining, what assurance is there that chemicals will not leak into the Truckee River, only 6 miles away? Dry country such as Nevada cannot afford to lose any aquifers to pollution. We also note that this is a seismically active area, which could cause the failure of leach ponds and tailing dams. Also, presumably, water will have to be pumped out of the pit during mining. Since the Humboldt basin is already overdrafted, will the State permit this additional pumping, and under what rationale? Will this pumped water be put to any beneficial use? What happens after mining ceases, this portion of the Truckee groundwater basin has been depleted, and the artificially high river flow stops, to be followed by an artificially low river flow?
- 33-2
- 33-3
- 33-4

Our second concern is the limited extent of the environmental analysis of this proposal. Environmental Impact Statements must consider impacts which may be: (1) Direct; (2) Indirect; (3) cumulative. (40 CFR 1558.25(c).) Intensity of impacts must include consideration of whether an action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by treating an action temporary or breaking it down into small component parts. (40 CFR 1558.27(h)(7)).

The DEIS itself states that "although the Proposed Action covers a mine life of 5 years, verified reserves are now about twice the quantity on which the Plan of Operations is based". Also according to the DEIS, Atlas has increased their land holding to 9100 acres, far more than the current project (less than 1000 acres). Thus, by the statements in the DEIS by themselves, the document is in violation of the National Environmental Policy Act (NEPA) by not considering reasonably significant cumulative impacts on the environment.

Also, Atlas states on their WEB page that "the expansion resulted from the staking of 140 additional mining claims ... Atlas Gold has now secured the

Sierra Club Olinghouse DEIS Comments

P. 1

- 33-1 The pit would not be backfilled (DEIS at 2-8). The rationale for this decision is discussed in the DEIS at 2-23.
- 33-2 Water quality in the pit lake would be good, as stated in the DEIS at 4-10. Long-term evaporative loss from the pit lake would be 13 acre-ft/year, as stated in the DEIS at 4-10.
- 33-3 Please refer to the response to comment 1-1.
- 33-4 Please refer to the response to comment 1-5.
- 33-5 Please refer to the responses to comments 1-24, 3-1, and 3-3.

4-158

Olinghouse Mine Project Final EIS

33-5

mineralized trend in the Olinghouse Mining District, which extends over a distance five miles long and one-mile wide. Recently completed geochemical soil studies on the new land position have defined 10 exceptional gold targets.... It is the company's belief that these reserves may represent only a fraction of a much larger gold reserve contained in the Olinghouse Mining District. which in prior years had significant placer gold production. Seven of the 11 Nevada mining districts which historically have had such production have since been developed into large-scale, gold-producing mines, including Carlin and Battle Mountain. Olinghouse is well on its way to becoming the eighth such district, and we look at this significant land expansion at Olinghouse as being a real coup for our company.* Thus, by Alte's own statements, the environmental impacts to water and scenic quality, as adverse as they may be, of the present project have a very high probability of being magnified many times. NEPA requires that the impacts of reasonably foreseeable future actions in the area be considered in this DEIS, not fragmented into smaller projects. We do not believe that future impacts can be termed "speculative" or "nebulous" but must be considered as very probable and real, and dealt with now.

Thank you for this opportunity to comment. Please keep us informed regarding your actions on this project.

Sincerely,

Stan Hays

LETTER 34, SIERRA CLUB, CALIFORNIA/NEVADA RCC, BLM LANDS COMMITTEE

SIERRA CLUB
CALIFORNIA/NEVADA RCC
BLM LANDS COMMITTEE

230 Larkspur Street
Ridgescrout, CA 93555

Bureau of Land Management
Carson City Field Office
Attn: Terri Knutson, BLM Project Manager
5665 Morgan Mill Road
Carson City, NV 89701

Nov. 12, 1997

Dear Terri Knutson:

This letter concerns the DEIS for Alte Gold's proposed new development in the Olinghouse District. My concerns about this project follow.

I have visited mines in Nevada as well as here in California and am observing a disturbing trend. Though the 1872 Mining Law limits BLM's options, companies seem to be requesting "creep permitting"; and perhaps BLM can find a way to consider the whole picture and deal with it as a whole rather than in pieces. Companies set up a plan of operations for a specified time and place. However, there is the perception that, even as they consider this first plan, they are looking at extensions into the future at the same or different claims close by. If one canyon seems promising, they are exploring and claiming others for future use. In the case of Alte Gold, this sort of "add-on" may be envisioned. I urge the BLM to consider the long term effects of such a possibility. Reclamation and mitigation requirements may not work for a piecemeal situation as they would for a one-operation permit. Also, the bigger the operation over time, the bigger the environmental disaster if the price of gold drops and the original bond was insufficient.

This particular DEIS raises concern over hydrology. If drilling could be below the water table, the proximity to the Truckee River leads us to question the effects on the riparian habitat and on wildlife. The possibility of a cyanide or some other spill in a seismically active area is a very strong consideration.

Thank you for considering these views.

Sincerely,

Jeanie S. Hays
Jeanie Stillwell Hays
Co-Chair

- 34-1 Please refer to the responses to comments 3-1 and 3-3.
34-2 Please refer to the responses to comments 3a-35 through 3a-45.
34-3 Please refer to the responses to comments 1-1 and 1-5.

34-1

34-2

34-3

LETTER 35, NEVADA DEPARTMENT OF TRANSPORTATION



BOB MILLER, Governor

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION

1263 S. Stewart Street
Carson City, Nevada 89712

November 12, 1997

TOM STEPHENS, P.E., Director

In Reply Refer to:



PSD 7.01

JULIE BUTLER COORDINATOR
NEVADA STATE CLEARINGHOUSE
DEPARTMENT OF ADMINISTRATION
BUDGET DIVISION
BLASDEL BUILDING ROOM 204
CARSON CITY NV 89710

Dear Ms. Butler:

The Nevada Department of Transportation has reviewed the project titled Draft EIS -- Olinghouse Mine Project, Washoe County SA1#E1998-044.

Based on the information submitted, we have the following comments on the proposed project.

- 35-1 1) The long term effect of truck traffic to and from the mine on SR 427 and SR 447 is not addressed except for the one statement declaring "State Routes 447 and 427 are both structurally adequate to handle mine-related traffic (Deroces 1996)". There is no mention of long term maintenance and repair.
- 35-2 2) The proposed Alta Gold Company's Mine Facilities would be located in Washoe County generating tax revenue for Washoe County. Much of the traffic generated by the mine will affect roads in Lyon County. Has there been any provisions made for Lyon County to receive monies and/or compensation towards the maintenance of their highways.
- 35-3 3) Training in hazardous waste containment should be provided for local (Wadsworth and Fernley) emergency response teams.
- 35-4 4) The Department requires the use of only legal, permitted accesses onto State roadways. A change or an increase in the function of this property served by an existing access or street may require a new right-of-way occupancy permit application and approval.

35-1 Truck traffic on State Routes 447 and 427 would experience an increase of about 1 to 6 round trips per day by trucks during both construction and operations.

All trucks would observe load limit criteria. The proponent does not believe that this magnitude of increased traffic warrants any financial contribution to road maintenance and repair other than the tax monies they would normally pay. It should be noted that no ore trucks would use these roads, but only delivery trucks.

Since Alternative A--which routes traffic around Wadsworth--is the preferred alternative, there would be no additional traffic on State Route 447 anyway.

35-2 All of the access route to the mine would be in Washoe County. Some workers at the mine may live in Lyon County, but traffic generated by them would be by car and light truck. No provisions have been made for Lyon County to receive monies from Washoe County.

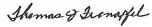
35-3 Alta has committed to the Fernley Town Board to provide training in hazardous waste containment to local emergency response teams.

35-4 Alta would obtain all necessary permits related to access onto State roadways.

Julie Butler
November 12, 1997
Page 2

Thank you for the opportunity to review this project.

Sincerely,



Thomas J. Fronapfel, P.E.
Assistant Director
Planning

TJF:PAF:dg

LETTER 36, MELISSA SMITH

DATE
FILE

Melissa Smith
14001 Cadet Rd.
Fallon, NV 89406

NOV 21 1995

Bureau of Land Management
Attn: Olinghouse Project Manager
5665 Morgan Mill Rd.
Carson City, NV 89701

36-1

There are no plans to stock the proposed pit lake with fish.

Please be advised that a 1:1 slope is a 45° slope rather than a straight vertical drop. Numerous slopes of approximately 45° occur naturally in the project area and vicinity.

Please refer to response to comment 15-1 regarding the proposed pit lake and wildlife.

These comments are in regards to the Draft Environmental Impact Statement Olinghouse Mine Project.

This project has been in the works for approximately two years yet Alta Gold has never contacted the Fernley Town Board or the Lyon County Commissioners. The B.L.M. and Alta have contacted the Tribe and Washoe County only. When the public scoping process began the meetings were in Reno. As this proposed project greatly impacts Fernley and Wadsworth I requested, at that time, a scoping meeting in Fernley. Thankfully this was done resulting in a small turnout of concerned citizens in spite of very little advertising of this meeting.

Washoe Co. will receive over three million dollars from this proposed project, whereas Fernley/Wadsworth will receive nothing. This area is out of sight-out of mind to Washoe Co., yet the area proposed to be impacted is a visual resource for Fernley/Wadsworth. Even as small as this project is proposed to be it would not be an allowed use on any of the surrounding mountains in the Truckee Meadows.

Gold is hovering around \$310 a Troy oz. as other gold producing nations are flooding the market making one wonder if this is a financially viable project.

Historically mining has taken place at Olinghouse. This is noticeable from just about everywhere in Fernley by the light color of the disturbed dirt. Historically there are no pits, leach pad, or rock dumps, per se. This proposed mine would, making the proposed project very visible from Fernley. The final ore heap height will be approximately 280 feet covering 66.5 acres. The upper end of Frank Free Canyon would be filled with the waste rock with a final vertical height of approximately 500 feet, covering 208 acres. These heights with the lighter disturbed materials would be very visible from all areas especially Fernley. The DEIS states this project would be visible to some extent... YES, to a very large extent!

The proposed pit lake "is estimated to be approximately 5,500 feet, resulting in a 3.4 acre lake approximately 90 feet deep." (2.1.8 DEIS) The evaporation rate would be approximately 13 acre feet per year and would reduce the recharge to Dodge Flats. These facts along with 1:1 slopes suggests this lake could never be stocked with fish in the future. The only future recreation use would be rock climbing. 1:1 slopes would also be detrimental to wildlife who, not knowing what the 5' berms were for, fall in. If a rock climber had an accident while climbing the pit how long of an emergency response time would it be while this person(s) is in the icy cold "lake"? 1:1 slopes would hamper an emergency response. Thank goodness Washoe County has an ambulance on call at the Stamp Mill Fire Sub-station. The lake will not be beneficial as the evaporation rate will be high. The higher humidity in this area will attach to air contaminants possibly producing more of an unhealthy air quality condition over Wadsworth.

In 1995 I did a small cumulative study on air pollutants in the Truckee River corridor. This study included Nevada Cement, SPPC with Pinyon and Granite at Patrick. (Table A) I also have been in contact with D.R.I. concerning wind patterns and air flow coming down the Truckee River corridor. The fact is, air flows from the Truckee Meadows down the river corridor to Fernley creating

36-1

a pocket of trapped air over Vadsworth. New businesses have located in Fernley since my study with more on the way. Fernley will have its own Class 1 source with Quebecor Printing. I am dismayed by the DEIS stating the proposed project area is "characterized by relatively low concentrations of air pollutants." I understand that air quality has never been studied in depth at Vadsworth or Fernley. Washoe County District Health Department Air Quality Management Division did a study in 1995, approximately 14 miles east of Sparks at the North side of the Mustang off-ramp. This was done for the SPPC's Pinyon project. Not included in the DEIS is the fact on high wind days Fernley/Vadsworth is inundated by dust from the Eagle Picher mine located South of I-80 between Orchard and Tracy off-ramps. Has Washoe Co. ever done a study of Air Quality at Vadsworth? Mining activities proposed at Olinghouse would add greatly to this. Fernley would suffer because of this action as dust would hamper the air quality, and would further impede the ability to view this wonderful visual resource.

The fact that the wildlife will be greatly impacted is well documented in the DEIS. The new haul road would have the most impact as animals are not used to (habituated) anyone traveling there. Bats have been "relocated" (forced out) by JBR Consultants. The adults were closed after the bats flew for the night. Basically anything living in the proposed project area will have to be relocated, be it the low end of the food chain, insects, to the higher, deer. Chapter 3.1.4 finds this project to be detrimental to wildlife and the environment. This proposed mine would have a lasting effect on naturally occurring plants and animals. The disturbed soils would not be suitable habitat for ground dwelling insects for many years. This is the base of the environment.

The Alta haul road is not explained fully in the DEIS. Alta has stated they will use the Pavite Gas Pipeline route. What little is stated in the DEIS "Class III survey of the access route has not been completed." (4-13-2) and the soils along the proposed road "... have severe limitations for road construction including shallow depth to rock, cemented pans, and presence of large stones. Reclamation potential of these soils is poor." Indicate this choice would be impractical. Also the proposed route ends north of I-80. After the gas line was completed a berm was placed across the route. The gas line was installed before the homes were build at the Stampmill subdivision. Does Alta propose traveling through this subdivision? Have the property owners been notified? The use of heavy trucks along and over the gas line would compact the soils around the gas line which might prohibit pipeline flexibility during an earthquake.

The proposed mine will be located adjacent to and within the area known for seismic activity. Two major faults interconnect "approximately five miles northeast of the proposed mine area." (Bonham, 1969) Therefore, there is high potential for seismic activity in the project area. Siddharthan et al. (1993) indicates that the design earthquake for the project area has under a magnitude of 7.2. "(DEIS 3-1-4) The liner under the leach area Alta proposed to use only withstands an 7.0 earthquake. The DEIS offers another warning on 4-1-1 that reads: "the project area is seismically active, and a large earthquake could cause extensive damage to structures and cause pit, waste rock, and leach pads slopes to fail." Why must we take chances on our ground water?

36-2 The BLM has disclosed potential impacts to wildlife in the DEIS at 4-17 through 4-20. Impacts on wildlife would be temporary, and the mined area would be available for wildlife habitat after mining ceased and reclamation occurred, as stated in the DEIS at 4-21.

36-3 The alternate access route is an existing right-of-way road for the Southwest Gas Pipeline authorized on public land in 1963. Please refer to response to comment 2-49.

36-4 The alternate access route begins more than one half mile from the subdivision and never passes or runs through it. The route follows the frontage road, south of the interstate highway, heading west and passes under the highway to follow the right-of-way road northwest to the proposed project area. Please refer to response to comment 2-49.

36-5 Please refer to the response to comment 1-5.

Table 1

	<u>N.C.C.</u>	<u>S.P.P.C.</u>	<u>Granite</u>	<u>Totals Ton/yr.</u>
T.S.P	417.4026	369.22	101.29	887.912
PM10	406.0616	135.5	58.26	599.8216
SO2	155.6932	224.9	6.	386.5932
NO2/NOx	n/a	1056.9	6.47	1063.37
CO	372.0206	483.3	7.	817.32
VOC	161.9744	38.3	7.	207.2744

compiled 1995 M.S.

Please accept my concerns regarding the proposed project: Lack of haul road; Low gold prices; Greatly impacted wildlife; Earthquake fault zones; 1:1 pit slopes; Air and water problems and losing a wonderful visual resource. I believe all of the above to be very valid reasons for a denial of the proposed project.

Sincerely,

Melissa Smith

A handwritten signature in cursive script that reads "Melissa Smith". The signature is written in dark ink and is positioned below the typed name.

From: Steve Wathen <swathen@sierra.net>
To: ilmmvc30.ilmmvd30(tknutson)
Date: Mon, Nov 17, 1997 11:40 am
Subject: Olinghouse Mine Project

Terri Knutson, EIS Project Manager
Bureau of Land Management
Carson City Field Office
5665 Morgan Mill Road
Carson City, NV 89701

Dear Terri Knutson,

Dear Terri Knutson,

I just realized that the deadline for comments on the Olinghouse Project was last Friday. Still I would like to persuade you to review the Olinghouse Project in the light of probable future expansions. To do less would, in my opinion, be a dereliction of duty as a person given trust by the public in protecting our public lands. I mean this quite literally.

We both know that mining companies often understate the size of their operations when seeking permits knowing that once operations have begun there that they will have developed vested interests in the project amongst employees and local politicians who have grown to rely on the revenues from the operation. In Alta Gold's situation with Olinghouse, this is certainly the case. Evidence for this comes from the company's own statements.

There are too many public resources at stake here, including water from the Truckee River, local aquifers and endangered species, for the long term prospects for environmental damage to be ignored in the interest of one's own career or agency harmony with potential permittees.

Please reconsider your and your agency's position on this matter. Require an analysis of all of Alta Gold's holdings in the area and their long-term plans for mining at or near Olinghouse. To do less would be a failure of trust.

Sincerely,

Steve Wathen

LETTER 38, NEVADA DIVISION OF WILDLIFE

38

Thank you for your comment.

4-168

Olinghouse Mine Project Final EIS

RECEIVED
OCT 29 1987
SEP 18 1987

NEVADA STATE CLEARINGHOUSE
 Department of Administration
 Budget and Planning Division
 200 East Museum Street, Room 200
 Carson City, Nevada 89701-4206
 (702) 887-4300
 Fax (702) 887-3653

DATE: September 16, 1987

Governor's Office	Legislative Counsel Bureau	Conservation/Natural Resources
Nuclear/Pipeline Office	Conservation Bd.	Director's Office
Business & Industry	Emp. Training & Rehab. Research Div.	State Lands
Agriculture	FGC	Environmental Protection
Energy	Transportation	Forestry
Minerals	State Library of Nevada	Wildlife
Environment/Development	State Library	Recreation
Tourism	State Library	Region I
Fire Management	State Library	Region II
Human Resources	State Library	Conservation Districts
Agency Services	State Library	State Parks
Health Division	State Library	Water Resources
Public Communications	State Library	Watershed Management
Colorado River Commission	State Library	Wild Horse Domination

Nevada SA # E1998-044 Project: Draft EIS - Olinghouse Mine Project, Washoe County

☒ Yes ☐ No Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:

Enclosed, for your review and comment, is a copy of the above mentioned project. Please evaluate it with respect to its effect on your plans and programs. The importance of its contribution to state and/or local needs, goals and objectives, and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments to the [redacted] Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SA number and comment due date for our reference. Please contact Jale Butler, Clearinghouse Coordinator if you have any questions (867-4303).

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

☐ No comment on this project
☒ Comment supported as written
☐ Additional information below

☐ Conference desired (See below)
☐ Conditional support (See below)
☐ Disapproval (Explain below)

AGENCY COMMENTS:

Signature [Signature] Agency NBOW Date 9/26/87

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LETTER 39, NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

39

Thank you for your comment.



NEVADA STATE CLEARINGHOUSE

Department of Administration
Budget and Planning Division
200 East Musser Street., Room 200
Carson City, Nevada 89701-4298
(702) 687-4367
fax (702) 687-3883

SEP 17 97

DATE: September 16, 1997

Governor's Office
Nuclear Projects Office
Business & Industry
Agriculture
Energy
Minerals
Economic Development
Harden
Fire Marshal
Human Resources
Aging Services
Health Division
Indian Commission
Colorado River Commission

Legislative Council Bureau
Communications Int.
Emp. Training & Rehab Research Div
PSC
Transportation
LRR Bureau of Mines
UNR Library
UNLV Library
Museums Preservation
Emerging Management
Washington Office

Conservation/Natural Resources
Director's Office
State Lands
Wildlife
Region 1
Region 2
Region 3
Conservation Districts
State Parks
Water Resources
Water Planning
Natural Heritage
Wild Horse Commission

Nevada SAI # E1998-044

Project: Orall EIS - Olinghouse Mine Project, Washoe County

☒ Yes ☐ No Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:

Enclosed, for your review and comment, is a copy of the above mentioned project. Please evaluate it with respect to its effect on your plans and programs, the importance of its contribution to state and/or local statewide goals and objectives, and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than SEPTEMBER 16, 1997 in the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference. Please contact Julie Butler, Clearinghouse Coordinator, if you have any questions (687-4367).

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

☒ No comment on this project
☐ Proposal supported as written
☐ Additional information below

☐ Conference desired (See below)
☐ Conditional support (See below)
☐ Disapproval (Explain below)

AGENCY COMMENTS:

David R. Couperthwaite
Signature David R. Couperthwaite
NDEP Clearinghouse Coordinator
s:\harder\clear\clear.doc

NDEP
Agency

9/30/97
Date

Olinghouse Mine Project Final EIS

LETTER 40, NEVADA DIVISION OF STATE LANDS

40

Thank you for your comment.

4-170

Olinghouse Mine Project Final EIS

NOV - 5 1997

NEVADA STATE CLEARINGHOUSE
Department of Administration
Budget and Planning Division
209 East Musser Street, Room 200
Carson City, Nevada 89701-4298
(702) 687-6367
fax (702) 687-3963

DATE: September 16, 1997

DIVISION OF STATE LANDS		Conservation Natural Resources
Governor's Office	Executive Council Bureau	Director's Office
Nuclear Projects Office	Communications Bd.	☒ Environmental Protection
Business & Industry	Energy, Training & Rehab Research Div.	Forestry
Agriculture	☒ Forest	Wildlife
Energy	Transportation	Region 1
☒ Minerals	Utah Bureau of Mines	Region 2
Economic Development	Utah Library	Region 3
Tourism	Utah V. Library	Conservation Districts
Fire Marshal	Historic Preservation	State Parks
Natural Resources	Emergency Management	Water Resources
Aging Services	Washington Office	Water Planning
Health Division		Natural Heritage
Indian Commission		Wild Horse Commission
Colorado River Commission		

Nevada SAI # E1998-044 Project: Draft EIS - Olinghouse Mine Project, Washoe County

☐ Yes ☐ No Send more information on this project as it becomes available.

CLEARINGHOUSE NOTES:

SEP 17 1997

Enclosed, for your review and comment, is a copy of the above mentioned project. Please evaluate it with respect to its effect on your plans and programs; the importance of its contribution to state and/or local overall goals and objectives, and its accord with any applicable laws, orders or regulations with which you are familiar.

Please submit your comments no later than NOVEMBER 1, 1997. Use the space below for short comments. If significant comments are provided, please use agency letterhead and include the Nevada SAI number and comment due date for our reference. Please contact Julie Butler, Clearinghouse Coordinator, if you have any questions (867-4367).

THIS SECTION TO BE COMPLETED BY REVIEW AGENCY:

☐ No comment on this project
☒ Proposal supported as written
☐ Additional information below

☐ Conference desired (See below)
☐ Conditional support (See below)
☐ Disapproval (Explain below)

AGENCY COMMENTS:

Signature

Agency

Date

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-

5.0 MITIGATION MEASURES

The following proposed mitigation and monitoring measures have been developed to reduce potentially adverse impacts. These are in addition to the environmental protection measures and the mitigation and monitoring outlined in Section 2.1.9 and Chapter 4 of the DEIS.

- 5.1 Event Pond Design. The design capacity of the event pond would be increased from a 25-year, 24-hour event to a 100-year, 24-hour event.

The increased capacity would not result in additional surface disturbance and would deepen the pond an additional 5 ft to a total depth of 24 ft. The added material excavated from the pond would be used in the cut-and-fill design of the facility. Increasing the capacity of the event pond would provide further assurance that storm results would not allow toxic substances to impact groundwater or the Truckee River. The residual impact would be an overflow of the event pond if a storm event greater than the capacity of the pond were to occur.

- 5.2 Drip Emitters and Heap Grade. Drip emitters would be required on the heap and the grade of the heap would be 1-2%.

The use of drip emitters and the grading of the heap would reduce the potential for solution ponding and the attraction to birds. There would be no residual impacts resulting from this proposed mitigation.

- 5.3 Cultural Resources. If identified cultural resources become threatened, a treatment plan would be developed by the BLM to ensure that those resources receive adequate mitigation.

This mitigation would provide additional protection for cultural resources in the future. There would be no residual impacts.

- 5.4 Noxious Weeds. Alta would be responsible for controlling all noxious weeds and other undesirable invading plant species in the reclaimed area until revegetation activities have been determined to be successful and signed off on by the BLM. Alta would obtain approval from the BLM for any and all applications of herbicides, including types and quantities. All seed would be tested for purity as well as for noxious, poisonous, and/or prohibited plant species, and the test results submitted to and approved by the BLM, unless certified weed free seed is procured for this reclamation project.

This mitigation would help prevent the invasion and spread of noxious weeds, promote the use of weed-free seed mix, and place the responsibility and costs for the above on Alta. There would be no residual impacts.

- 5.5 Nest Surveys. A nest survey would be conducted by a qualified biologist prior to any new surface disturbance occurring between the months of January and August.

Nest surveys would identify birds that could be disturbed by mining activities and afford protection during their reproductive period. A residual impact would be that some nests may be missed in a survey and those birds could be negatively impacted.

- 5.6 Raptor Protection. Unless otherwise agreed to in writing by the authorized officer, power lines would be constructed in accordance to standards outlined in "Suggested Practices for Raptor Protection on Powerlines," Raptor Research Foundation, Inc., 1981. The holder would assume the burden and expense of proving that pole designs not shown in the above publication are "eagle safe." Such proof shall be provided by a raptor expert approved by the authorized officer. The

BLM reserves the right to require modifications or additions to all power line structures placed on the right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions would be made by the holder without liability or expense to the United States.

Appropriate line design would eliminate the potential for electrocution to perching raptors. There would be no residual or adverse impacts resulting from implementing this measure.

- 5.7 Revegetation Test Plots. Revegetation test plots would be established on the mine site, in consultation with the BLM, to determine successful revegetation methods, desired plant communities, and final bond release criteria for revegetation.

Revegetation test plots would determine, early in the life of the mine, the methods required for successful revegetation and eventual bond release. There would be no residual or adverse impacts resulting from implementing this measure.

- 5.8 Access Road to Communication Site. The access road to the communication site would be kept open and free from hazards resulting from mining activity.

- 5.9 Power Line Protection. All existing buried and overhead power lines would be protected and Alta would notify the owner when working in the vicinity of such power lines.

Proper protective measures and notification procedures would reduce the potential for accidents to personnel and damage to power lines. There would be no residual or adverse impacts resulting from implementing this measure.

-
- 5.10 Revegetation Seed Mixture. The seed mixture would be modified to delete Palmer penstemon and add wild lupine at 5 lbs pls/acre.

Modifying the seed mixture eliminates the potential to contaminate a naturally rare variant in adjacent counties via hybridization. There would be no residual or adverse impact resulting from implementing this measure.

- 5.11 Wildlife Guzzler. Alta would install one wildlife guzzler in the vicinity of the proposed project area in consultation with BLM and NDOW.

Installation of a wildlife guzzler would attract wildlife away from proposed project facilities, and provide an additional water source in this arid landscape. There would be no residual or adverse impacts resulting from implementing this measure.

APPENDIX A:
OLINGHOUSE MINE PROJECT SCOPING REPORT



OLINGHOUSE MINE PROJECT SCOPING REPORT

A Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) was published in the Federal Register on Thursday, June 13, 1996, page 30091, to initiate the scoping period. Comments were accepted until July 19, 1996.

The NOI was published in the legal notices of three area newspapers: The Reno Gazette-Journal, The Carson City Nevada Appeal, and The Fernley Leader-Dayton Courier.

Seventy-three scoping letters describing the proposed project were sent to various agencies, groups, and individuals who may be affected by or interested in the proposed project.

Verbal briefings were provided to Washoe County officials, Lyon County, and the Pyramid Lake Paiute Tribal Council.

A public scoping open-house was held at the Washoe County Commissioners Chambers in Reno, Nevada, on July 3, 1996. Twenty-seven individuals attended the open-house and no written comments were received.

Due to the public interest in the proposed Olinghouse Mine Project, it was decided to extend the comment period and hold another open-house in Fernley, Nevada.

A Notice of Open-House and Extension of Comment Period was published in the Federal Register on Thursday, July 18, 1996, page 37491. The comment period was extended to August 23, 1996. The notice was published in the same three area newspapers and announcements were sent to the agencies, groups, and individuals on the original scoping mailing list. Announcements were also posted in various public locations in Fernley.

The second public scoping open-house was held on August 8, 1996, in Fernley, Nevada, at the Fernley Town Complex. Twenty-four individuals attended the open-house and no written comments were received.

A total of nineteen scoping comment letters were received. The following issues and concerns, categorized in general groups and summarized, were identified in scoping:

Project Description

- Identify the quantity and source of water to be used for the project.
- Describe the leak detection system and other planned precautions to ensure cyanide leach solution does not impact local surface and groundwater; address both seepage and catastrophic failure scenarios.
- Describe contingency plans for toxic materials spillage on site and enroute to the site.
- Describe all project components; identify their sizes and locations.
- Identify fencing, pond netting, and other precautions to prevent site entry and accidents to livestock, wildlife, and recreational visitors to the area.
- Identify pit dewatering requirements.
- Identify plans and specifications for upgrading and maintaining access roads to the project site.

- Identify plans for disposal of sewage and solid waste.
- Describe the types and quantities of resources (water, fuel, electricity, reagents, etc.) to be used by the project and the quantities of products, byproducts, and wastes to be produced.
- Describe plans for detoxifying leach solutions and leach pad following mine closure.
- Describe transportation methods, routes, amounts, frequency, etc. for hauling toxic materials to and from the project area.
- Describe route and size of transmission line needed for the project.
- Describe construction schedule, construction labor force, construction costs, operational work force and payroll, and expected taxes.

Climate and Air Quality

- Determine current compliance status of the mine area for criteria and non-criteria pollutants.
- Provide available data from historic air quality sampling in the vicinity.
- Describe climatic patterns and meteorology of the area.
- Assess air quality impacts (both fine and very fine particulates) from blasting, ore/waste rock loading/unloading and haulage, ore crushing, and fugitive dust from roadways, stockpiles, and other disturbed areas.
- Assess air quality impacts from vehicles and equipment exhaust emissions; fuel storage; leaching, milling, and smelting operations; and reagent storage and use; provide a comprehensive emissions inventory for the project.
- Demonstrate compliance with the State Implementation Plan.
- Address cumulative air impacts of the proposed project and other existing pollution sources in the region.
- Discuss air pollution controls for each of the proposed project components.
- Consider mitigation options for reducing traffic to the mine on gravel roads and for reducing dust emissions from the road surface.

Geology and Minerals

- Describe surface and subsurface geology of the project area.
- Discuss or model the geochemistry of the mine area; provide details on acid generation potential, heavy metal toxicities, and neutralization/buffering capacity.

Water Quality and Quantity

- Identify and characterize local aquifers and their recharge areas.
- Assess potential for acid drainage and trace metal toxicities in surface and groundwaters resulting from exposed waste rock dumps and leach pad.
- Assess risk of containment failure and subsequent toxic releases related to potential seismic activity in the area.
- Assess potential impacts of toxic effluents to surface waters and groundwaters due to either seepage or catastrophic failures of impoundments and containment structures.
- Assess potential for and chemical characteristics of resultant pit lakes.
- Ecological risk assessment for bioaccumulation of trace elements from pit lake waters.
- Assess impacts of project water consumption on other local groundwater users, existing water rights, and protected species in the Truckee River.

- Assess potential for pit development, possible mine dewatering, and water consumption to impact local springs, seeps, and surface flows.
- Assess long-term impacts of mine pits, waste rock dumps, and leach pad on surface water quality, groundwater recharge, and groundwater quality.
- Assess impacts from discharge of waste waters including rinse waters from heap closure and decontamination, and stormwater runoff from access roads.
- Consider cumulative impacts of Proposed Action, historic mining activities, and other groundwater users in the vicinity.
- Recommend that anticipated impacts to local stream systems be mitigated to eliminate the impacts or reduce them to insignificant levels.
- Recommendation that hydrologic structure design be based on Probable Maximum Event or 1,000-year, 24-hour event criteria rather than 100-year event.
- Consider partial pit backfilling to prevent formation of possible pit lake.
- Use of double synthetic liner and compacted clay liner under leach pad and solution collection system.
- Monitoring of pit water quality and local groundwater to ensure absence of impacts during and following operations.
- Monitor local stream systems (Truckee River and perennial reaches of tributary drainages) to ensure absence or adequate mitigation of impacts during and following operations.
- Section 404 Permit under the Clean Water Act would be required for any discharge of dredged or fill material into wetlands or waters of the United States.

Wildlife and Fisheries

- Characterize local wildlife populations and their use of the area, including sensitive habitat resources.
- Assess potential for successful revegetation and restoration of wildlife habitat values following project completion.
- Assess potential impacts to wildlife species and their habitat, including mule deer, pronghorn antelope, sage grouse, and mountain quail.
- Assess potential for spillage or release of hazardous materials and resultant impacts on fish and wildlife.
- Consider mitigation and/or compensation for wildlife impacts and habitat losses.

Threatened, Endangered, and Candidate/Sensitive Species

- Assess potential impacts to threatened, endangered, or candidate species identified by the U.S. Fish and Wildlife Service as potentially occurring in the project area.

Vegetation/Soils/Reclamation

- Identify available topsoil resources and their salvageability.
- Provide detailed discussion on reclamation; recommendation is to use only native plant species indigenous to the area.

Hazardous Materials and Solid Waste

- Identify transportation routes for hazardous materials; identify legally protected resources along these routes.
- Identify location and qualifications of personnel and equipment that would respond in the event of a hazardous materials spill.
- Assess potential for transportation accidents involving spillage of hazardous materials and resultant impacts on local residents.
- Consider Alta funding for hazardous materials training/equipment in Wadsworth.
- Use of Wadsworth transfer station for trash disposal.

Access and Land Use

- Provide a map of land ownership in the project area.
- Assess impacts on access for other users of Olinghouse Canyon.
- Assess impacts of Proposed Action on present and proposed land uses on the Pyramid Lake Paiute Reservation, including high school construction, recreational development, residential development, agricultural development, potential "wilderness" areas, and environmental education.
- Assess impacts of heavy truck traffic on maintenance costs for local paved and unpaved roads.
- Assess impacts of mine operations on local traffic safety, in both rural and residential contexts.
- Consider staggered work schedules and/or bus transportation to minimize traffic impacts in Wadsworth.

Recreation

- Describe the current recreational values in the project area.
- Assess impacts to recreational uses of the area.

Social and Economic Values

- Characterize the local economy, employment and unemployment, population demographics, community infrastructure and government, taxation, housing, health care, etc.
- Assess economic impacts to local communities and to the Pyramid Lake Paiute Tribe for planning and preparation expenses related to hazardous materials accidents.
- Assess impacts of planned recruiting and hiring practices on employment levels in local communities.
- Assess impacts of the Proposed Action on local housing demand and community infrastructure including schools, law enforcement, transportation facilities, etc.
- Assess lost opportunity costs associated with impacts to other land uses on the site.

Noise/Visual Resources

- Characterize the existing noise environment.
- Assess impacts of noise from blasting and other mining operations on local residents and wildlife.
- Assess impacts to visual resources.

Cultural Resources

- Assess impacts on historic structures at Olinghouse.
- Assess impacts of the Proposed Action on cultural, traditional, and religious values of the Pyramid Lake Paiute Tribe.

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